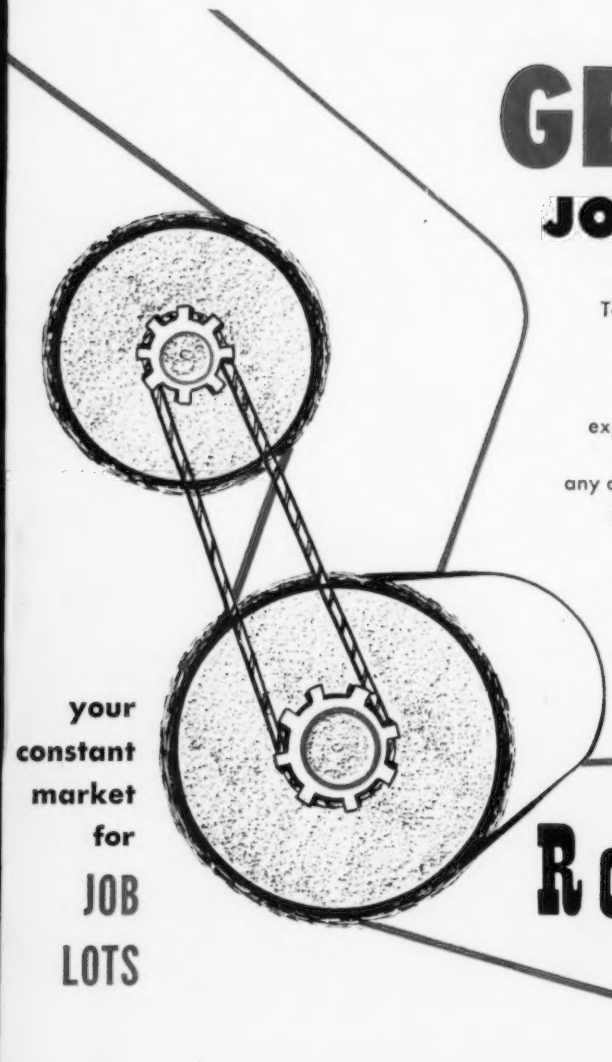
- *How E. B. Eddy Maintains Trucks*
- *What's New In Scandinavian Pulping*
- *Paper from Dacron, Nylon, Orlon*

PAPER TRADE JOURNAL

MARCH 5, 1956



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Papermakers find *New* Huyck Felts help eliminate marking . . . making possible vastly improved finish.

New Huyck felts go a long way toward helping Mill Superintendents meet the growing demand for *better finish.*

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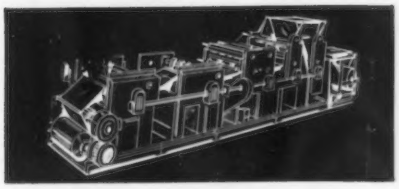

Hycar coatings put sales punch in papers...

improve grease, solvent, abrasion resistance, pigment bond

HYCAR latices are giving new dimensions to the sales picture of improved papers. One of the big jobs that Hycar is doing is with wax-coated packaging papers. Hycar resists penetration of the oil and glycol based inks required for printing food wrappers. Printed wrappers have a new sparkle—are doing a brilliant sales job.

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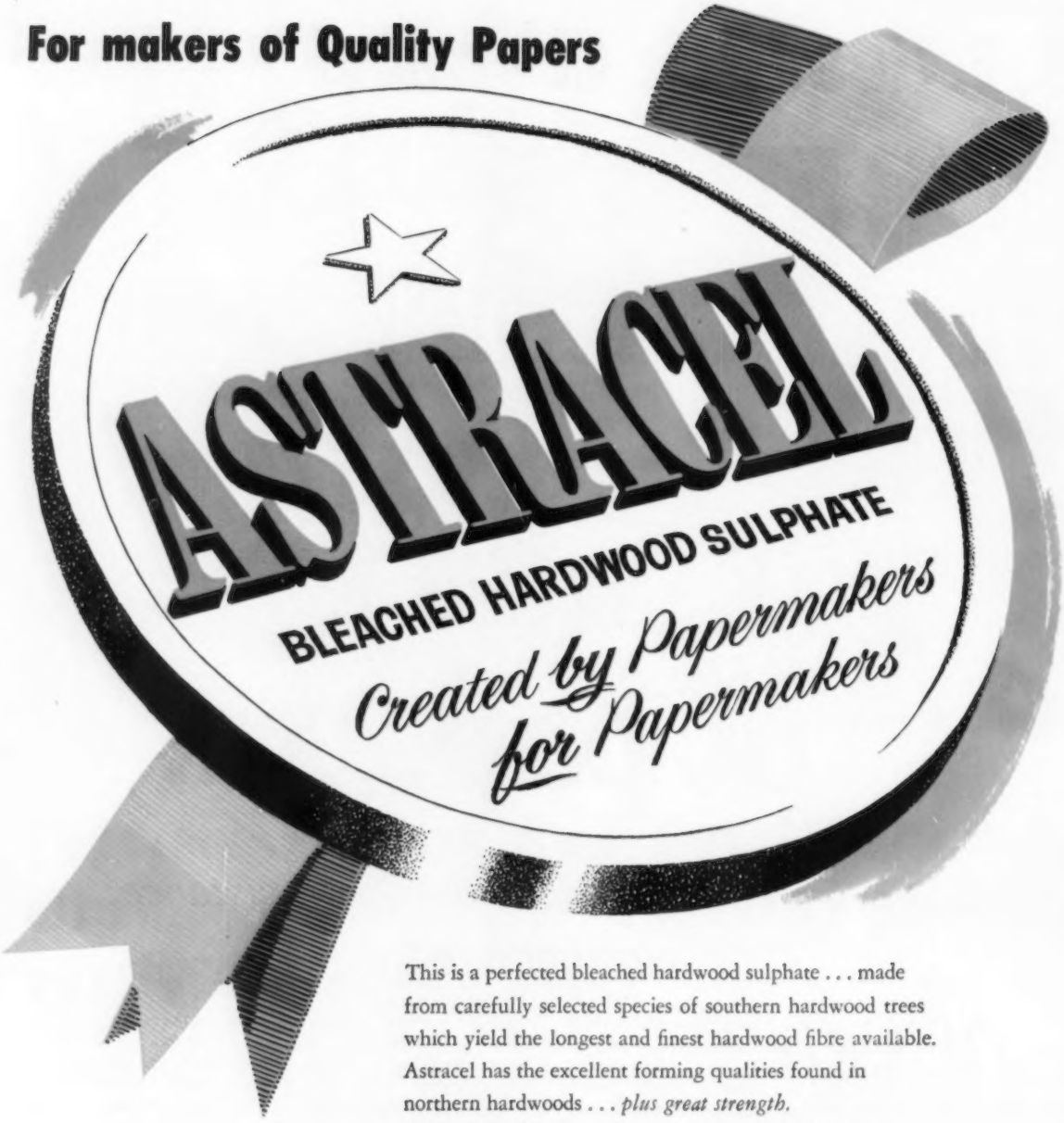

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Published every Monday by LOCKWOOD TRADE JOURNAL CO., INC., 15 West Forty-Seventh Street, New York 36. Phone: PLAZA 7-2370.

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Entered as Second Class Matter at the post office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 North Crystal St., East Stroudsburg, Pa. Printed in U.S.A.

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Paper Trade Journal is indexed in Industrial Arts Index and Engineering Index. Also publishers of Lockwood's Annual *Directory of the Paper and Allied Trades.*

REMEMBER THESE DATES

APR. 9-11: Annual Meeting of The National Paper Trade Assn., Waldorf-Astoria, New York, N. Y.

APR. 9-12: National Packaging Exposition and Conference, Convention Hall, Atlantic City, N. J.

MAY 7-9: **Coating Conference, Benjamin Franklin Hotel, Philadelphia, Pa.**

JUNE 12-14: National Meeting of Superintendents Assn., Lake Placid Club, Lake Placid, N. Y.

JULY 9-20: Fifth Statistical Conference co-sponsored by TAPPI and Tech. Sec., Canadian Pulp and Paper Assn., Queens University, Kingston, Ont.

PAPER TRADE JOURNAL

Published Weekly Since 1872

March 5, 1956, *Vol. 140, No. 10*

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LOCKWOOD TRADE JOURNAL CO., INC., 15 W. Forty-Seventh St., N.Y. 36

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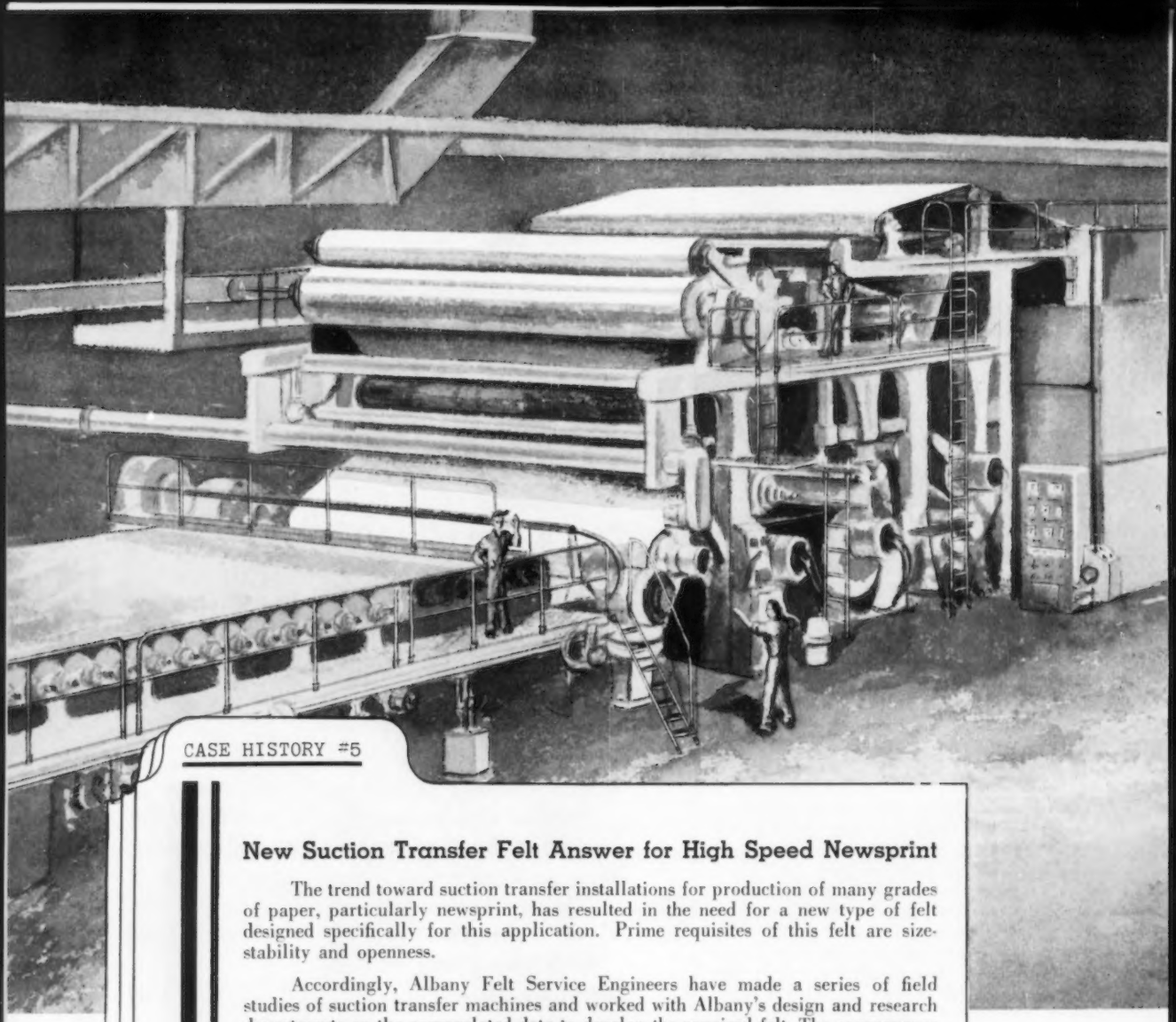

CASE HISTORY #5

New Suction Transfer Felt Answer for High Speed Newsprint

The trend toward suction transfer installations for production of many grades of paper, particularly newsprint, has resulted in the need for a new type of felt designed specifically for this application. Prime requisites of this felt are size-stability and openness.

Accordingly, Albany Felt Service Engineers have made a series of field studies of suction transfer machines and worked with Albany's design and research departments on the accumulated data to develop the required felt. The consequence of this effort is a new suction transfer felt featuring a special weave for size-stability, small synthetic content to give additional protection against frictional wear, and J-3 treatment to assure good openness.

RESULTS: The initial run of this new felt on a suction transfer newsprint machine designed for speeds to 2,000 ft. per minute showed excellent drainage and stability and a felt life which exceeded that of felts previously used by 28%.

For improved felt performance on your machines, call in your Albany Felt Sales Engineer. His analysis of your problems, together with the efforts of the industry's top team of Service Engineers, Designers, Research and Laboratory Specialists, will bring you the famous "blue line" felts you need to help produce *more saleable tons per day!*

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Sales Outlook

Paper manufacturers will experience a 28.3 per cent rise in sales by 1965 from present levels, Dr. Louis T. Stevenson, well known paper economist, announced. The paper sales total last year was $10.9 billion, which would bring the new figure to $14 billion. But this is the conservative view, Dr. Stevenson points out. "If the trends from 1926 to 1954 continue, estimated sales for the industry will be almost $20 billion."

Wedding Bells And One Rumor Sounded

The market in Europe for household papers has "hardly been scratched" Sir Eric Bowater told *Paper Trade Journal* last week just after announcing the formation of a newly amalgamated English Scott-Bowater paper firm. (See story in News Section of this issue). Sir Eric also stated that in addition to the third newsprint machine scheduled to come into producion later this year at the Calhoun mill, a fourth and larger machine is being considered.

There's Wood Left In Them Hills

Finland will need 2 million cubic meters of pulpwood annually for the $130 million mill announced in P.T.J. last week, a great portion of which will be birch, heretofore not used on a commercial scale.

Output Rates Up, For Big 1956

Paper mills, since the beginning of the year, have been humming along under full production operations—fuller in fact than 1955 highs. The percentage of paper production to mill capacity for seven weeks of 1956 hit 101.7. This represents a 7.8 per cent greater mill performance than the like period in 1955. Paperboard activity is also up over year-ago rates. In the five weeks from Jan. 21 to Feb. 18, output hit 100.6 per cent of capacity, 2.4 per cent more than 1955.

New Package Will Dominate Market

A new one-piece paperboard cigarette package is slated to make deep inroads in the 20 billion package unit market now held by paper and foil. The new box differs from ones introduced last year by makers of Marlboro and Encore cigarettes, in that it's made from one piece of board, requires less gluing, and is therefore cheaper to produce and more able to compete with other cigarette packaging materials.

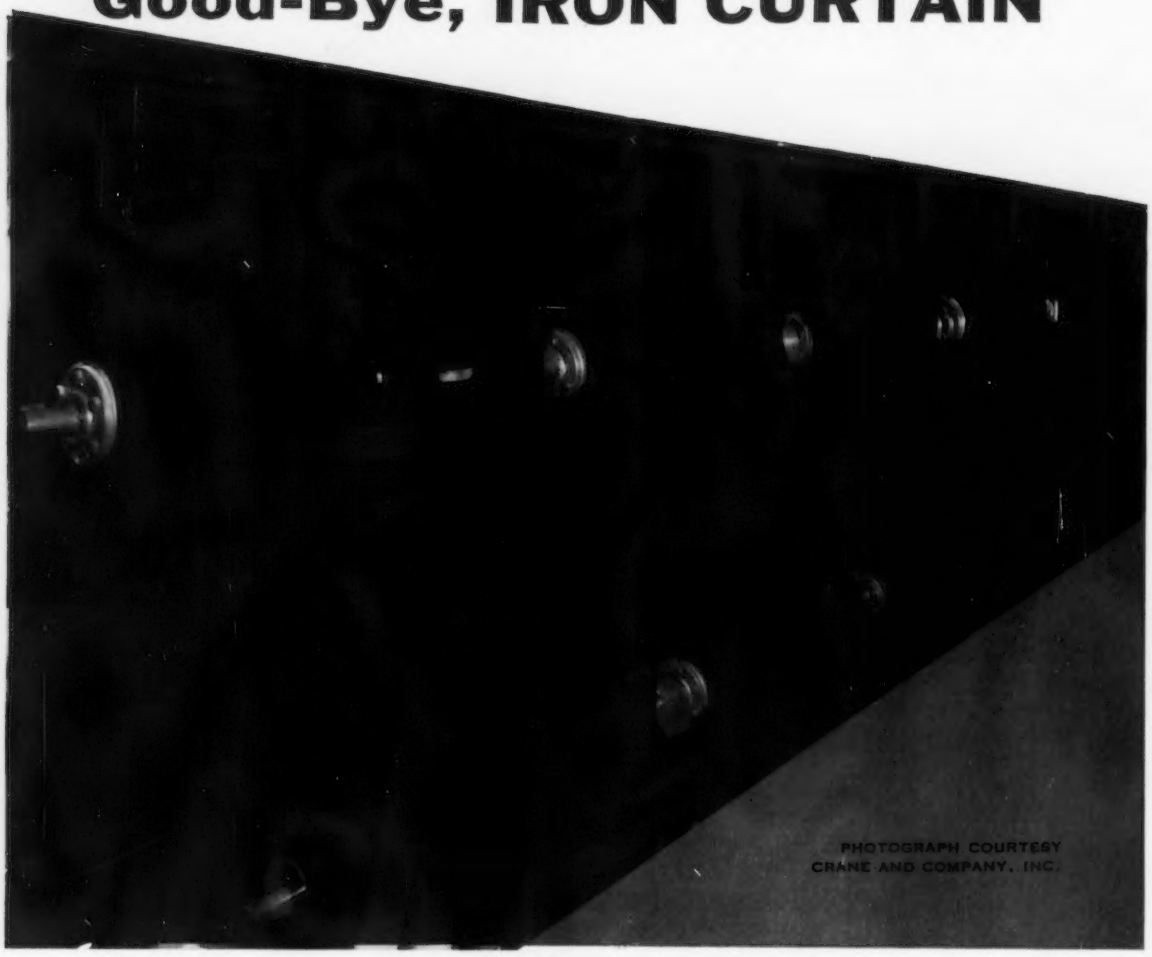
Kraft Paper—Hiked

Increases of $10 per ton for kraft paper were announced during the week by St. Regis Paper Co. The hike, which goes into effect March 1, followed a similar announcement by West Virginia Pulp & Paper Co. made earlier in the week. The adjustment in the St. Regis price is the first one of its kind in two years.

Uncle Sam Opens Woodland Gates

Thanks to more intelligent handling of public forests, the U.S. is now selling all the timber it can without endangering steady yield. The policy change came as good news to paper and lumber companies, who currently pay $100 million for the supply. Previous cutting was substantially below steady regrowth level.

Good-Bye, IRON CURTAIN



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CRANE AND COMPANY, INC.

Rice Barton's new Worm Gear Drive* has eliminated the Iron Curtain of Dryer Gears.

Now the drying characteristics of the front and back sides of the section are alike.

The Rice Barton Worm Gear Drive* provides equalized ventilation plus quieter safer operation.

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*PATENT APPLIED FOR

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WEEK OF PAPER TRADE JOURNAL MARCH 5, 1956

ALL ON CHIPS from Wastewood

Western Kraft To Double Oregon Mill

The board of directors of the Western Kraft Corp., at Albany, Oregon, have authorized a substantial expansion program for the less-than-a-year old mill, R. V. Hansberger, executive vice-president, told the *Paper Trade* JOURNAL in a personal interview last week.

The expansion program will approximately double the mill's present production, now rated a 120 tons per day. Cost of the proposed improvements, which will affect both the pulp mill as well as the paper machine, was estimated at "below $5 million" by Mr. Hansberger.

No specific details concerning the program are as yet available because the decision to expand is itself only a week old. Known already however is that the program will include increases of the mill's digester capacity, washing plant changes and modifications of the mill's recovery boiler, screening department, and other miscellaneous equipment such as storage tanks, pumps and so on. The paper machine's production will be increased by adding a number of dryers, Mr. Hansberger said.

While some of the work connected with this expansion program will be handled by the mill's own engineering staff, it is expected that an outside engineering firm will be assigned much of the work, according to Mr. Hansberger.

He called attention to the fact that the directors approved the expansion program exactly a year after the building contractor had moved onto the 100 acre mill site to begin the original construction work. The mill has only been in operation five months. Mr. Hansberger stated that Western Kraft's decision to expand was motivated by the following factors: a successful beginning, continued strong demand for liner board, confidence in the continued availability of raw materials, and the desire to utilize anticipated earnings.

Construction of this mill has caused widespread industry interest due to a number of unique features in this operation. Among these is the mill's relatively small size for a newly constructed mill and the fact that it was the first mill built to utilize wastewood from independent suppliers.

New Tennessee River Firm Incorporates in Delaware

The Tennessee River Paper Co. has filed a charter of incorporation with the Corporation Department of the Secretary of State's office, Dover, Del. Authorized capital stock of the firm is $1 million Corporation Trust Co., 100 W. Tenth St., Wilmington, Del., is serving as the principal office.

First news of this firm was released several weeks ago by Gunnar Nicholson, a former executive vice-president of Union Bag & Paper Corp. who had resigned to become president of Tennessee River Paper Co.

Plans Firm for New $65 Million N. B. Mill

Contracts for construction of a $65 million pulp and paper mill venture at Lepreau, on New Brunswick's south shore, are expected to be let by June 1 with late fall 1958 set as target date for completion of the project, according to Toronto's *Financial Post*.

Start of construction on the proposed British-U. S. financed newsprint plant, however, hinges on the New Brunswick Electric Power Commission's ability to supply 60,000 hp. plus steam for the development.

The British and U. S. interests, it is understood, have acquired the charter of Maritime Pulp & Paper Mills Corp., incorporated under a bill passed at the 1948 session of the Legislature.

It is also understood that Stadler, Hurter & Co., Montreal consulting engineers, have been engaged to design the plant facilities and auxiliary facilities for a 500 to 700-ton kraft newsprint mill, and that survey parties are already at work on the site.

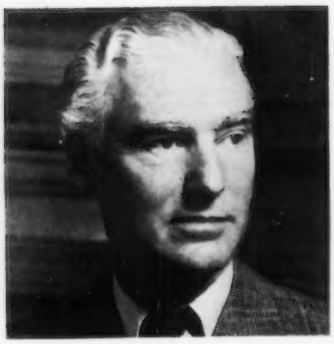
NBEPC engineers have expressed confidence that the requirements can be met and are working out details covering the erection of a thermal plant at the site to be submitted to Maj.-Gen K. C. Appleyard of Sir Robert McAlpine & Sons, London, and Michael Butler, vice-president Butler Company, Chicago, later this week.

Details of the project were announced following a meeting here of Messrs. Appleyard and Butler and co-promoter E. C. Atkinson, Fredericton barrister, with Premier Flemming, members of the cabinet and power commission officials.

One of the principals involved disclosed that the output of the mill would be taken on a guaranteed basis by a New York City newspaper.

The site of the proposed plant, located on the west side of the Lepreau Harbor, Charlotte Co., a deep-water ice-free port, would permit water transportation throughout the year. It is about 550 miles by water from New York.

Meanwhile, it was learned on reliable authority, that Lord Beaverbrook interests are showing interest in constructing a newsprint mill in New Brunswick, but not necessarily in the Lepreau region.



Sir Eric Bowater
Chairman of Bowaters

T. B. Mc Cabe
President of Scott

Bowater and Scott Join Hands And Will Build Tissue Mill in England

The Bowater Paper Corp. of London, Eng. and Scott Paper Co. have announced plans to form a new jointly owned company which will manufacture and distribute Scott's line of products in Great Britain. The new company is to be called Bowater-Scott Corp., and Bowater and Scott will have equal ownership and representation on the board of directors. Sir Eric will be chairman of the company.

The new company will be the successor to St. Andrew Paper Mills, which has for some years been engaged in the manufacture and sale of products similar to Scott's. St. Andrew Mills was acquired by the Bowater Organization early in 1955 and is a subsidiary of Bowater Paper Corp., Limited.

Present plans for immediate expansion include the construction of a new tissue plant by the Bowater-Scott Corp. The arrangement would provide for the use of Scott trade-marks for the company's products as well as the continuance of the certain brands already in distribution by Bowater's St. Andrew Mills.

Construction has already been begun on the new plant and it is expected to begin production in 1957. It is located at Northfleet, Eng., adjoining the Bowater's existing Thames River Mills.

Sir Eric Bowater in announcing these plans told *Paper Trade* JOURNAL that he foresees more joint ventures with Scott in other parts of the world.

Sir Eric Confirms Plan For 4th Calhoun Machine

In a recent press interview at the Calhoun, Tenn., mill of Bowaters Southern Paper Corp., Sir Eric Bowaters, confirmed news that a fourth paper machine would definitely follow the current installation of #3 machine.

Sir Eric told news men: "Our dreams have been fully realized. Current production is a third more than the mill was designed for." He said there were definite plans for a fourth paper machine, not for newsprint, but for other types of paper "but if the newsprint supply is still short when we prepare for the installation we will take another look."

Asked if he had any idea when the supply of newsprint would catch up with the demand, Sir Eric replied: "Can you tell me the growth of newsprint use? You tell me that and I will answer your question."

American Industry, including pulp and paper firms, can work in its own enlightened self interest by supporting a sound foreign economic policy, J. D. Zellerbach, Crown Zellerbach Corp. president, told a Denver University Social Science Foundation Audience recently. This economic policy includes the gradual lowering of tariffs at home and abroad, and is aimed at encouraging a rising level of world trade. Mr. Zellerbach concluded his talk by stressing the need for U. S. participation in the new organization for trade cooperation, and organization which he said "will put teeth into our general agreements on tariffs and trade."

Long-Bell Sued By Plywood Firm

A $35 million suit for damages and violation of contract by Harbor Plywood Corp. against Long-Bell Lumber Co. has been filed in Federal Court in Seattle, Wash.

Norton W. Simon, chairman of Harbor Plywood, has charged that for five years ending in mid-1955, the actions of Long-Bell, with important stock ownership in Harbor Plywood, were "in direct contravention of ethical business practices."

The suit accuses Long-Bell of having entered into an "illegal, fraudulent and secret scheme to obtain control of Harbor Plywood and its timber resources, to utilize such control for its benefit and profit and to eliminate Harbor as a competitor in the plywood field and in the acquisition of sources of timber supplies in the Pacific Northwest."

According to the *Wall Street Journal*, Jesse W. Andrews, chairman of Long-Bell Lumber Co. stated that there was "nothing to this suit."

Questioned as to the suit's possible effect on the pending merger with International Paper, Mr. Andrews said: "I cannot conceive that International Paper regards the suit as a matter of substantial import to change its attitude insofar as continuing negotiations towards the end of a merger."

Long-Bell Merger Will Lead to New Mill Says I. P.

Commenting on the recent senatorial attack upon the proposed merger of Long Bell Lumber Co. with International Paper Co., a spokesman for International told newsmen that legality of the merger has been carefully considered and the lawyers for each of the companies advise that it can properly be made.

It was further stated that if the merger should be consummated, International Paper plans to construct a paper and paperboard mill in Oregon, intended to materially increase competition in the pulp and paper industry throughout all the West.

Hammermill Now Owns Watervliet Paper Co.

Hammermill Paper Co. says it has acquired control of Watervliet Paper Co., Watervliet, Mich. "More than the required 80%" of the Watervliet stock has now been deposited for exchange, Hammermill announced. Holders of the remaining undeposited Watervliet shares have until March 19 to turn in their stock, too, Hammermill said.

GOING UP at Palatka, Fla.

Hudson's New Tissue Mill Scheduled for Summer Production

The Hudson Pulp & Paper Corp.'s new tissue mill being built at Palatka, Fla., will probably get into production by mid-summer of this year. This will be the first mill to make tissue from 100 per cent Southern kraft pulp, so far as the Hudson officials know, although some kraft is mixed with hardwood pulp at some other tissue mills. The Hudson officials at Palatka say that they also may mix some hardwood pulp with the kraft to obtain certain characteristics, but this is a matter to be determined definitely by results obtained in initial production.

What has also not been determined as yet is whether the tissue mill will operate on a slush pulp to be pumped from the pulp mill or mill use finished pulp as it comes off the dryer, which would require repulping. This, too, will probably be decided after actual operating conditions have been studied so that it can be determined which method will be the more economical and practical.

Hudson is adding much more new kraft pulping capacity than will be used for making tissue. Present capacity of 450 tons a day is being increased to 650 tons daily. The additional 200 tons will all be bleached pulp, but only 80 tons of it will be used for tissue manufacture. The remainder will be marketed to other paper makers.

In expanding the plant capacity by 200 tons, additions are having to be made in almost every department from the wood yard through the shipping dock. The cost of new construction and new equipment will be about $15 million which the company believes is a comparatively low figure. R. H. Mills, chief engineer of the Palatka plant, serves as construction coordinator under the general supervision of Sam Siegel, vice-president and resident manager. There are a dozen or more individual contracts, the most important of which are:

J. E. Sirrine Co., Greenville, S. C., engineers.

Batson-Cook, West Point, Ga., building contractor.

W. L. Hailey Co., Nashville, Tenn., site preparation, including piling, foundation, underground piping, etc.

Sullivan, Long & Hagerty, Birmingham, Ala., construction of filter plant with fifteen million gal. a day capacity.

Layne-Atlantic Co., drilling water wells.

Grinnell Co., Providence, R. I., through Atlanta, Ga., office, piping.

Eichleay Corp., Pittsburgh, Pa., steel and machinery erection.

T. D. Little Electric Co., Montgomery, Ala., electrical work.

Piedmont Products, Charlotte, N. C., refractory and boiler setting.

One of the major phases of the expansion program is an increase in water supply from 10 million gallons to 25 million gallons a day. It has not been decided how many new wells will be needed for enough additional water, but possibly five or six are foreseen.

A Yankee paper machine with 228-inch trim and a Yankee dryer that is 12 feet in diameter will produce the new tissue tonnage. Products will cover the full range of sanitary tissues, including napkins, hankies and toilet paper. Hudson will be able to supply the South with tissue products from its Palatka mill instead, as formerly, from its mill at Augusta, Maine.

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of the United States production to mill capacity for the week ending February 18, 1956, was 101.3 percent, compared with 101.1 percent, revised, for the preceding week. The ratio was 95.5 percent for the corresponding week a year ago.

The paperboard production ratio for the week ending February 18, 1956, was 99 percent, compared with 100 percent for the preceding week, and 95 percent for the corresponding week last year.

(Detailed statistics on page 48.)

Survey Montgomery Area

Nine paper manufacturing companies are currently surveying the Montgomery section of Alabama seeking suitable sites for the construction of plants, it is claimed by Gen. Lewis A. Pick (retired), director of the Alabama Planning and Industrial Board.

Mr. Pick has declined to identify any of the firms by name, but said they had shown particular interest in timber, water and other resources available in the east central area of the state.

Westfield Sells Pa. Mill

Westfield River Paper Co., which has headquarters in Russell, Mass., has sold its McDowell division mill at Manayunk, Pa., to a new company, Pencoyd Paper Co. which plans to make corrugating paper from waste. Westfield sold buildings and one paper machine. Larger one was moved to the Russell, Mass. mill.

Banner Operates Former Hammond Mill

Within recent months the Banner Fibreboard Co. has been incorporated and has begun operations. This new corporation has acquired the paperboard manufacturing facilities heretofore owned by the Hammond Bag & Paper Co.

This mill located on a railroad siding at 22nd St. in Wellsburg, W. Va. was formerly owned by the Hammond company. It was not included in the negotiations recently consummated between the latter company and the Hudson Pulp & Paper Corp. The mill which is the original plant of the Hammond Bag & Paper Co. was designed in the beginning for the manufacture of certain cylinder-type papers used in bag making. Progressive changes in packaging styles and requirements have necessitated the use of increasing quantities of kraft paper, now more economically made in the pine forest areas of the southern states.

The manufacture of bag papers has accordingly been discontinued at the mill and equipment has recently been added for the production of a variety of paperboards regularly used in the manufacture of corrugated and folding boxes, spiral wound tubes and products fabricated from paperboard.

Banner is an entirely new enterprise. The directors of the company are C. D. Bell, S. K. Davidson, M. J. Davis, George Binhouser, J. C. Gist, Jr., D. E. Lewis, and Dr. J. P. McMullen. Officers are: President, M. J. Davis; Vice-President, D. E. Lewis; Secretary, C. D. Bell; Treasurer, Miss M. C. Garroch.

Time Inc. Gets Full Control of East Texas

Time, Inc., publisher of *Time*, *Life*, *Fortune*, and other journals, has concluded negotiations with the Houston Oil Co. under which it became the sole owner of the East Texas Pulp and Paper Co., Evadale, Texas and acquired the Southwestern Settlement and Development Corporation.

East Texas Pulp and Paper previously was owned jointly by Time and Houston Oil. Southwestern's 660,000 acres of timber lands and other assets previously were owned by Houston Oil.

Charles L. Stillman, executive vice president of Time, said East Texas Pulp and Paper would retain its present management headed by R. M. Buckley, executive vice-president and general manager, and that no change in operating policy was contemplated. Southwestern will operate as a division of the pulp and paper company.

In January Houston Oil disclosed plans for the sale of its oil and pipeline properties to the Atlantic Refining Co. and said it was negotiating with Time for disposition of other properties. With the completion of the sale of its properties Houston Oil plans to dissolve and distribute assets to stockholders.

The distinctive features of the versatile bleached kraft pulp and paper mill in Evadale were described in *Paper Trade* JOURNAL, November 21, 1955, pp. 40-45.

OUR EDITOR ON TOWN—John C. W. Evans is currently visiting the pulp and paper mills in the Southeast.

West Tacoma Newsprint Price Unchanged

In a letter to the 47 newspaper members in the eight Western states and Alaska, which consume the output of the West Tacoma Newsprint Co. mill under contract, officials advised that since no action was taken by their Board of Directors at a meeting in San Francisco, February 15 to change the price, the mill will continue shipments of newsprint at $126 per ton.

West Tacoma Newsprint's full contract quota demands were met in 1955 and in January, 1956 shipments exceeded total contract quotas by more than 8 percent. Further increases in shipments are expected after completion in March of No. 9 grinder installation and in the second quarter of a speed-up of No. 1 machine.

Dierks Orders Fourdrinier For New Arkansas Mill

Dierks Paper Co., the new subsidiary of Dierks Forests, Inc., will use in its new kraft liner board mill at Pine Bluff, Ark., a fourdrinier machine designed and manufactured by Black-Clawson's paper machine division, Watertown, N.Y. The paper machine order was recently placed through Rust Engineering Co. which is handling engineering design, materials, and equipment purchasing, and construction services for the new Dierks mill.

Designed to produce 150 tons per day of high grade kraft liner board, the machine will feature a Bagley-Sewall 166 inch permanent cantilever fourdrinier. The suction couch is mounted as an integral part of the cantilever mechanism to provide for quick wire change.

The press part will consist of a suction first press and a plain second press. Suction rolls for the couch and first press will be of Black-Clawson design.

Three sections of 60 inch double deck dryer, a size press, two calender and an Autoflyte "36" reel will comprise the balance of the machine. The entire machine, from couch to reel, will be driven through heavy duty spiral bevel gear drives.

Colo. Press Votes Down Mutual Newsprint Mill

The Colorado Press Assn. has voted down a proposal to participate in the construction of pulp and paper mills. It was turned down even as a paper company executive predicted that the newsprint shortage will continue "for several more years."

The shortage which forced a Denver newspaper, The Rocky Mountain News, to eliminate all advertising in two Christmas season editions, was the subject of a resolution drawn up by Earl Asbury of the Las Animas Bent County Democrat.

Presented during the association's annual convention in Denver, the resolution suggested that the press association attempt to have new paper mills built in Colorado to be owned and operated by the state's newspapers.

Members of the group, recalling the ill-fated outcome of another paper mill project planned for western Colorado several years ago, voted the proposal down with little discussion. At that time the proposed Columbine Paper Mill, planning to utilize beetle-killed Engelmann spruce, failed to materialize because the necessary financing—between 15 and 20 million dollars—was not available.

PAPER PEOPLE

J. S. Harvey

W. H. Young

C. D. Fink

L. A. Pierce

Glatfelter Promotes Three

The P. H. Glatfelter Co., Spring Grove, Pa. has promoted Joseph S. Harvey from maintenance superintendent to an assistant to the director of purchases. Mr. Harvey has worked in various departments covering 17 years of employment with the company.

The position of maintenance superintendent was filled by William H. Young who served as yard supervisor. Mr. Young has been an employee of the company for 19 years.

Charles D. Fink, who worked in the yard department, was promoted to yard supervisor. Mr. Fink started employment at the Glatfelter Company nine years ago.

New Director of Develpmt. At Virginia Cellulose Dept.

Dr. Richard E. Chaddock has been appointed to the newly-created post of director of development for Hercules Powder Co.'s Virginia Cellulose Department.

At the same time, Dr. William G. Kinsinger was appointed manager of Hercules' Sales Research Division, succeeding Dr. Chaddock.

Leonard Pierce Joins Penobscot Chemical Fibre

Leonard A. Pierce Jr., joined Penobscot Chemical Fibre Co., of Great Works, Maine and Boston, March 1, as assistant to the president, Eugene H. Clapp.

Mr. Pierce has been associated for 15 years with St. Regis Paper Co. in New York and at Bucksport, Maine.

Guimond Joins Brown Co.

F. X. Guimond, long associated with pulp and paper firms in Canada, has been named manager of pulp manufacturing at Brown Co.

Mr. Guimond comes to Brown from the Canadian International Paper Co. at Temiskaming, Quebec, where he has been supervisor of production of various high grade dissolving pulps for textiles and films. He previously was superintendent of control at the Gatineau mill of Canadian International Paper.

Mr. Guimond also served as chief chemist for the Quebec North Shore Paper Co. and technical operator with the Restigouche Co. at Campbellton, New Brunswick.

Three Major Appointments At Racquette River

Orchard Paper Co., St. Louis, reports the addition of three new men to the management group of its Rocquette River Paper Corp. Division, Potsdam, N. Y.

Ayers for Personnel

Dr. Arthur Ayers will occupy the position of personnel director and will be in charge of all industrial relations as well as employee relations and training. He comes to Racquette River directly from the University of Maryland where he recently resigned as associate professor of industrial psychology. Before this, he was manager of personnel relations at American Viscose Corp. in Philadelphia and there he had occasion to work with the Textile Workers' Union of America.

Elias Made Technical Head

New technical director at Racquette River is Robert T. Elias. He has received his MA degree from the Institute of Paper Chemistry and has had practical experience in both converting and paper making.

His industrial experience includes 6½ years at Detroit Sulphite Pulp & Paper Co. where he held the position of chemist. He then spent 7½ years at Whiting-Plover Paper Co., Stevens Point, Wis., where he occupied the capacity of chief chemist and participated in management in sales and production problems. Before coming to his new position at Racquette River, Mr. Elias was engaged as Associate Professor at Kalamazoo College.

Pinto Is Controller

Morris Pinto comes to his new post at Racquette River with a variety of background in the field of accountancy. He will be in charge of accountancy and controller work. His experience includes being controller for an interoceanic trading concern, controller of a multi-warehouse distributor of steel products and four years as a public accountant.

Heads Johnston Paper

James H. Burton, formerly executive vice president and sales manager, has been elected president of the Johnston Paper Co., Cincinnati, Ohio, paper merchants.

He succeeds Henry M. Zimmerman, who has been president and treasurer for 28 years. Mr. Zimmerman was elected chairman of the board of directors.

Mr. Burton is also president of the Central States Paper Trade Assn.

Also elected by the company were Robert W. Garrison to the post of vice-president, and Albert A. Matthews as assistant secretary.

Art Bernhardt

Paul Wilkinson

Bernhardt Named Kraft Supt. at Nekoosa

Art Bernhardt has been named superintendent of the kraft mill of Nekoosa-Edwards Paper Co., Port Edwards, Wis.

He has been with Nekoosa-Edwards since April 1952, and has been assistant superintendent of the kraft mill since February 1953. A graduate of New York State College of Foresty, Syracuse, Mr. Bernhardt was associated with the Kalamazoo Vegetable Parchment Co., Parchment, Mich. and Espanola, Ont., before joining Nekoosa-Edwards.

Ed Weinfurter will continue in the kraft mill as staff superintendent.

Stouck and Church Head Lock Haven Div.

All manufacturing activities of the New York & Pennsylvania Co., Inc. in Lock Haven, Pa. will be combined into one administrative unit to be known as the Lock Haven Division. Gibson P. Stouck, formerly executive assistant to the vice-president, had been named manager of this new unit and in that capacity will direct and be responsible for all phases of the local operations.

Herbert C. Church, formerly technical assistant to the vice-president, has been named general superintendent of the division and, under the direction of the manager, will assume active leadership of the manufacturing efforts of the division.

The two Lock Haven mills will retain their separate identities for all other than general administrative purposes. The manager will actively direct and supervise all activities of the division.

Skowbo Promoted

Stuart W. Skowbo, vice-president and treasurer of Brown Co., has been elected senior vice-president and treasurer. He will be the senior officer of the company resident in the Berlin area.

Mr. Skowbo came to Brown in June 1954 as treasurer. He was elected vice-president and treasurer last July.

Retires After 46 Years

Paul Wilkinson, superintendent of the paper mill division of the Williamsburg, Pa., mill of West Virginia Pulp and Paper Co., retired March 1 after completing more than 46 years of service with the company.

Mr. Wilkinson, who celebrated his 65th birthday on February 3, began his career with the company in September 1909 as a fourth hand in the machine room of the Williamsburg mill. Working his way up from one job to another, he became assistant paper mill superintendent in 1927. In 1934 he was promoted to the position of paper mill superintendent, a post which he occupied until his retirement.

A testimonial dinner was given Mr. Wilkinson a few days before his retirement by more than 60 of his colleagues as an expression of their esteem for him as an individual and for his exceptional devotion to the duties and responsibilities of his position. Mr. Wilkinson has two sons employed at the Williamsburg mill.

Wheeler to Head West Va. P.&P. Subsidiary

John D. Wheeler, director and production manager, has been promoted to the position of operating head of Rigesa, S.A., Brazilian subsidiary of West Virginia Pulp and Paper Co. Mr. Wheeler will serve with the designation of director and general manager. He succeeds M. H. Collet.

Mr. Collet, who is resigning to accept a position with another company in the United States, will remain on the Rigesa staff until April 30. He has been associated with West Virginia since 1945, serving in the New York office as assistant to the vice-president in charge of woodlands prior to his assignment to Brazil in October 1952.

Mr. Wheeler has been an employee of West Virginia for 20 years. Before going to Brazil in October 1954, he was superintendent of the tall oil plant at the company's Covington, Va., mill. Later in the year Mr. Wheeler will be located in the city of Sao Paulo, where the company maintains a sales and administrative office. He and his family now reside in Campinas, near the plant.

Rigesa, S.A., a wholly owned subsidiary, was acquired by West Virginia Pulp and Paper Co. in June 1953. The company operates a pulp and paperboard mill and a modern box factory at Valinhos, State of Sao Paulo. Rigesa supplies corrugated shipping containers, gummed tape and other paper products for the Brazilian market.

Weyerhauser Shifts 12 to Cosmopolis

The Weyerhaeuser Timber Co. has moved 12 engineers, a chief accountant and a purchasing agent to Grays Harbor as part of the personnel of the company's pulp plant now under construction in Cosmopolis.

Engineers will complete designs of the mill and some will remain as a part of the permanent operational force. Merrill Robison, project engineer from the Longview mill, heads the group. James Frary is the purchasing agent and Howard Johnson chief accountant.

Join Oxford

Ashton S. Hamilton has joined the technical service department of the Oxford Paper Co., Rumford, Maine, as chief chemist.

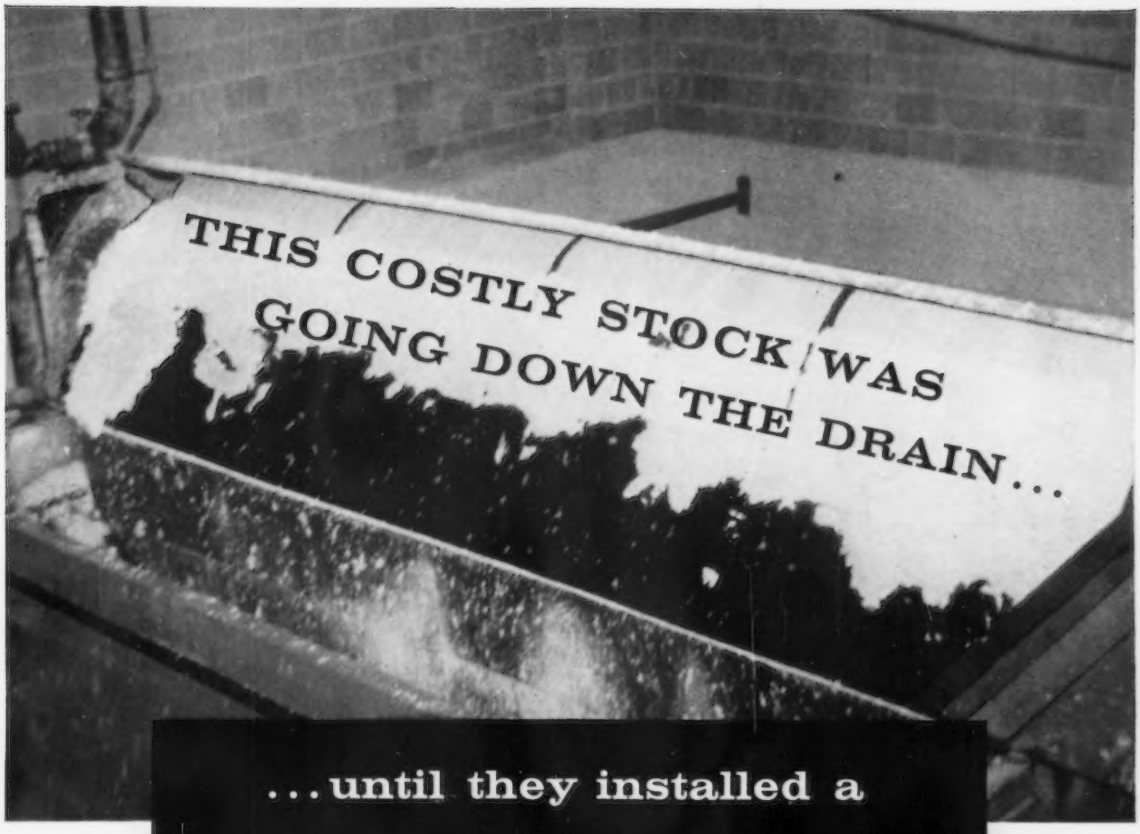
Before joining Oxford, he had experience with the Scott Paper Co., Winslow, and many years with the Hollingsworth and Whitney Co. before it became a part of Scott Paper.

Cyril E. Johnson has joined the research and development department of Oxford as an assistant group leader in the coating group.

Before joining Oxford, he had experience with the Bird Machine Co., South Walpole, Mass., and with the General Electric Co., Lynn, Mass.

Orchard Names Grimes To Technical Post

The technical department at Orchard Paper Co. in St. Louis will be headed by William S. Grimes after March 1. He replaces Bernie Fischlowitz, the present technical director. Mr. Grimes had previous experience at Orchard from 1941 till 1946 when he maintained the position of foreman in the ink room and assistant technical director. From 1946 until his present association with Orchard Mr. Grimes was associated with Ahdawagan Division of Consolidated Water Power & Paper Co. At this location he was head of the lab as well as assistant division manager, playing a prominent part in the technical development of laminated plastics and corrugated and solid fiber boxes.



...until they installed a

BIRD SAVE-ALL SYSTEM

When you look at the good thick mat of fibres coming off the couch roll of your Bird Save-All it's like watching good paper dollars being snatched from the sewer.

For the stock that is recovered by the Bird Save-All is stock that has been put through long and expensive processing and is finally ready to be made into salable paper.

The Bird Save-All is designed and built to produce the highest net return per pound of fibre recovered. First cost and installation cost is low. So is the cost of operation and maintenance.

No auxiliary equipment is involved. Simple gravity is the separating force.

The Bird Save-All delivers the stock and water in shape for immediate re-use. No vacuum. No chemicals. No storage problems.

Let us make recommendations, estimates and layouts.

BIRD
MACHINE COMPANY

SOUTH WALPOLE, MASS.
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • DECATUR (Atlanta), GEORGIA

How Industrial Trucks are Maintained at E. B. Eddy Co.

D. D. Hall
Manager, Material Handling

Good service from trucks demands top grade maintenance. This can only be obtained by team work between the superintendents, maintenance foremen and drivers. This report tells how a well organized maintenance program obtained substantial reduction in truck maintenance costs with improved service.

Nothing is more important to the mill superintendent than good service from all industrial trucks. He will always judge the performance of every vehicle by daily continuous operation. A vehicle he never hears about is rated tops. On the other hand, sometimes he will condemn a vehicle the first time it fails if his production suffers as a result.

There is only one department where the superintendent looks when he requests improvement in truck service, and that is the Maintenance Department. In fact, he often goes to the maintenance superintendent when he himself could reduce breakdowns by proper training and supervision of his drivers.

Importance of Driver

The supervisor in charge of the truck driver will only obtain the best service from a truck if he himself trains the driver to:

- Clean the exterior of the vehicle daily (also superintendents to insist upon semi-annual repainting).
- Check oil level daily and to report to Maintenance Department any excessive usage or any evidence of leakage.
- Operate the vehicle with care.
- Immobilize the vehicle instantly when running gear, brakes or lifting mechanism operates unsatisfactorily and report to the Maintenance Department without delay.

While operating superintendents have cause for their frequent complaint that trucks are not satisfactorily maintained, it is also true that maintenance foremen warrant a hearing when they learn of breakdowns caused by careless vehicle operation. In fact, I fear that we superintendents can make the biggest improvement in the service available from the trucks in our departments. The attention given to our drivers and vehicles should be raised to the same standard as we apply to the paper machine crew and the paper machine.

This is the second article in our present Maintenance Series. The first article, "How to Organize a Better Maintenance Department" by S. H. Grimnes, appeared in the February 20th issue. That issue also contained a list of the 20 subjects to be covered in this series.

However, this article is primarily concerned with the actual maintenance activities. These are most effectively carried out where preventive maintenance is carried out on a planned schedule. The facilities and trained mechanics available to carry out all maintenance operations are to be dealt with later.

Preventative Maintenance Program

To set up a preventive maintenance program three things are essential:

- The setting up of periods of engine hours or operating hours for each vehicle at which time a) minor and b) major inspections are to take place, is first.
- The inauguration of daily engine operating hour reports by drivers to the Maintenance Department is second. Note that experience shows that hours of duty can be used providing normal load factor is above 50 percent.
- Lastly, the engine or operating hours must be accumulated daily and inspection work orders issued promptly when the elapsed period equals that set for each vehicle.

To operate a preventive maintenance program, two things are required. The truck must be inspected and repaired, if necessary, on schedule. This requires night shift maintenance crews for day shift vehicles where spare trucks are not available. Spare trucks are essential for vehicles required for three shift continuous operation. The second requirement is for adequate replacement parts to be kept in Stores so that a) the vehicles can be repaired and returned to service without delay and b) the temptation will be eliminated to re-assemble worn parts in order to clear the vehicle from the repair shop.

The actual inspection points and repair details carried out at the end of each period of operation are listed on the "Gasoline Truck Inspection Report Form" illustrated here. The average minor inspection is carried out on a 50 operating hour schedule and the major inspection on a 3000 hour schedule.

The following schedule is recommended for electric vehicles:

Minor Inspections at 100 Operating Hours

1—Tires
2—Steering
3—Brakes
4—Cables or Chains
5—Controllers
6—Motors
7—Contactors
8—Resistance Boxes
9—Wiring
10—Battery and Charger
11—Hydraulic System Leakage

Major Inspections at 1000 Operating Hours

1—Frame
2—Drive Unit
3—Wheels
4—Hoist Unit
5—Tilt Unit
6—Slew Unit
7—All Worn Parts

A "Preventive Maintenance Check List for Electric Industrial Trucks" is shown which furnishes more detail for the above.

The necessity for the establishment of a defined record procedure is dependent upon the number of vehicles serviced by one maintenance department. However, even a small two man maintenance department should maintain records of each vehicle. A complete record system is described below with the forms illustrated:

VEHICLE RECORD is kept on this 12" x 9¼" file card. Shown are front side (top) and back side (bottom).

Note: X show Maker
Y include Changes & Repairs

THE E. B. EDDY COMPANY

DRIVER ..... START DATE ... TRUCK RECORD
DRIVER ..... START DATE .....

OPERATING RECORD				TIRE RECORD				MINOR INSPECTION	
		X	X					NORMAL INTERVAL	
WEEK ENDED	HOURS	FUEL GALS	OIL PTS	DATE	MAKE	SER. NO.	X HIST.	SCHEDULED	COMP.

PREVENTIVE MAINTENANCE CHECK LIST

Electric Industrial Trucks

SCHEDULE A
50 Hours Service or Weekly

GENERAL (for All Truck Types)

Check:
- Oil Level in Drive Axle
- Service Brake
- Parking Brake
- Steering for backlash or binding
- Warning Signal

Inspect:
- Frame, Skirts, etc., for damage
- Tires, for cracks and other defects
- Battery Receptacle

Lubricate
Road Test Truck

FORK TRUCKS

Check:
- Oil Level in Hydraulic Tank
- Hoist and Tilt Cylinders, for leakage
- Hydraulic Hose Fittings
- Pressure Gauge
- Pressure Check Valve
- Forks, for damage

Test:
- Hydraulic Relief Valve
- Function of Attachments

LOW LIFT PLATFORM TRUCKS

Check:
- Trail Wheel Bearings, for lubrication & wear
- Oil Level in Hoist Mechanism

Inspect:
- Platform Lift Linkage
- Universal Jointts

HIGH LIFT PLATFORM TRUCKS

Check:
- Trail Wheel Bearings, for lubricaion & wear
- Oil Level in Hoist Mechanism

Inspect:
- Lift Chains
- Universal Joints

CRANES

Check:
- Oil Level in Boom, Hook & Slew Reduction Units
- Cable Drums

Inspect:
- All Cables
- Universal Joints
- Boom, for mechanical damage

Test Boom & Hook Limit Switches

SCHEDULE B
250 Hours Service or Monthly

Check:
- All points in Sched. A
- Oil in Brake Master Cylinder
- Clearance of Brake Shoes
- Oil Level in Steering Gear Housing
- Horn Button
- "Dead-man" Control Interlock
- Operation of No-plug
- All Motors, Brushes & Commutators
- Controllers & Contactors: Replace Tips as required

Service Batteries
Blow out with Dry Compressed Air:
- Controllers & Contactors
- Motors
- Resistance Boxes

Blow Dirt out of Truck with Compressed Air

Check:
- Hoist and Tilt Cylinders for excessive drift
- Chain Reeving
- Strainer in Hydraulic Line
- Master Controller, for speed sequence
- Uprights & Elevator Carriage, for strain or damage

Check:
- Operation of Controller Linkage
- Steering Linkage

Inspect Platform, for damage

Check:
- Steering Linkage
- Operation of Controller Linkage
- Lift Mechanism Brake Lining

Inspect Uprights & Elevator Carriage
Lubricate Lift Chain

Check:
- Steering Linkage
- Controller Linkage
- Boom & Hook Hoist Brake Lining

Inspect:
- Slewing Mechanism
- Boom & Hook Hoist Mechanism

Lubricate Cables

SCHEDULE C
1000 Hours Service or Every 4 Mos.

Check:
- Wheel Bearings: Repack
- Wheel Bearing Seals
- All Wiring for loose connections or grounds
- Resistor Grids

Adjust Steering Unit for minimum backlash
Wash and Touch Up Truck
Repair Bent or Damaged Skirts, Battery Compartment Doors, etc.
Drain and Refill Drive Housing

Check:
- Pump Operating Switch, Service Elevator, for excessive play
- Inner Uprights, for excessive play

Service Hydraulic Pump
Inspect and Lubricate Elevator and Upright Rollers
Drain, Flush, & Refill Hydraulic Tank
Clean & Service Control Valves

Check & Service Auxiliary Switches
Drain & Refill Lift Mechanism Housing

Check:
- Uprights, for excessive play
- Lift Chain Tension

Drain & Refill Hoist Mechanism Housing
Lubricate Uprights & Elevators

Replace Worn Cables
Drain & Refill:
- Slew Unit Housing
- Hook Hoist Housing
- Boom Hoist Housing

Inspect & Lubricate Slew Bull Gear Housing
Check Slew Unit Bearing Adjustment

PREVENTIVE MAINTENANCE REPORT FOR TRUCKS

Put V in appropriate column
OK —Satisfactory condition
ADJ. —Adjustment Completed
REP. —Repairs Completed
REPL. —Parts Replaced
O. —Overhaul Completed
WNC.—Work Not Completed

Authorized By ..... (Foreman)
Minor Inspection ☐ ..... (Supt.)
Major Inspection ☐
Operating Hours Since Last Inspection Minor ..... Major .....

Vehicle No. ..... Date .....
Engine No. ..... Maker .....
Serial No. ..... Type .....
Mileage ..... Driver .....

MAJOR INSPECTION (INCLUDES ALL MINOR INSPECTION ITEMS)

MINOR INSPECTION

NO.	ITEM	OK	ADJ	REP	REPL	O.	WNC.
1	Spark plugs						
2	Dist. Cap						
3	Dist. Points						
4	Condenser						
5	Ignition Coil						
6	Timing						
7	Voltage Regulator						
8	Starter Motor						
9	Generator						
10	Battery Spec. Grav.		1		2	3	
11	Rad. Hose						
12	Water or Antifreeze						
13	Steering Box						
14	Brake Linings						
15	Foot Brake						
16	Parking Brakes						
17	Lubrication of Chasis						
18	Oil Level in Crankcase						
19	Instruments on dash						
20	Vacuum guage Reading Inch						
21	Oil Pressure at 25 MPH						
22	Tire Pressure						
23	Road Test						
24	Tires						
	FOR MAJOR INSPECTION ALSO INCLUDE THE FOLLOWING						
25	Engine						
26	Cyl. Head Bolts						
27	Cyl. Head Gasket						
28	Ex Flange Coupling						
29	Valve Clearance						
30	Valve Cover						
31	In & Ex Manifold Bolts						
32	In & Ex Manifold Gasket						
33	Engine Compression	1 2 3 4 5 6 7 8					
34	Leakage by Piston Ring	1 2 3 4 5 6 7 8					
35	Leakage by Valves	1 2 3 4 5 6 7 8					
36	Spark Plug Wires						
37	Dist. Governors						
38	Dist. Shaft & Bearing						
39	Batt. Term & G Strap						
40	Air Cleaner						
41	Carburetor						
42	Fuel Pump						
43	Gas Lines & Connection						
44	Hose Clamps						
45	Rad. Core						
46	Rad. Tanks						
47	Water Pumps						

NO.	ITEM	OK	ADJ	REP	REPL	O.	WNC.
48	Fan Belt						
49	Play in King Pins						
50	Tie Rod Ends						
51	Drag Link						
52	Sector Shaft						
53	Pitman Arm						
54	Front Wheel Alignment						
55	Wheel Bearings						
56	Brake Drums						
57	Wheel Cyls. & Oil Lines						
58	Master Cyl.						
59	Crankcase for Leaks						
60	Motor Supports						
61	Clutch Pedal Clearance						
62	Shock Absorbers						
63	Muffler & Tail Pipe						
64	Universal Joints						
65	Grease Retainers						
66	Axle Shaft						
67	Wheel Nuts						
68	Springs						
69	Spring Clips						
70	Spring U Bolts						
71	Spring Shackles						
72	Body & Cab Bolts						
73	Gasoline Tank for Water						
74	Power Take Off						
75	Level of Lub. Trans.						
76	Level of Lub. Diff.						
77	Coupler & Fifth Wheel						
78	Hoist Oil						
79	Vacuum System						
80	Hoist Hydraulic System						
81	Forks & Cartridge						
82	Master Ass.						
83	Oil Filter Cartridge						
84	Oil Filter Lines & Conns.						
85	Door Locks						
86	Door Hinges						
87	Window Reg.						
88	Fenders						
89	Body & Cab						
90	Paint						
91	Upholstering						
92	Lights						
93	R. V. Mirror						
94	Car Heater & Hose						
95	Defroster						
96	Vacuum Advance						

Report on Reverse Side: (a) Part Nos. & Nature of Repairs Made.
(b) Nature of Reparis When W.N.C.

Hours Sent On Inspection & Minor Adjustments. Inspector

Record System

The "Truck Order Form," shown here is primarily a daily report by each driver of what he did and how long it took him to do each job. In addition, he enters the hours of operation, fuel consumption and any defect in the operation of his vehicle. IN ADDITION, HE CHECKS OK *ALL ITEMS* WHICH ARE *NOT* DEFECTIVE EVERY FRIDAY.

The "Vehicle Record" card for each vehicle is designed to accumulate the daily hours of operation, to record orders for and report all repairs, tire changes and oil and gas consumption for gas trucks. Upon the accumulation of operating hours is based the dates of the issue of inspection orders. For instance, at the end of every 50 hours (on certain fork trucks) a minor inspection order is issued.

The "Truck Repair Job Ticket" is designed to be issued by the garage dispatcher whenever required by a note

M-503

E. B. EDDY COMPANY

Date _____ 195__

Driv: _____ TRUCK ORDER Truck No___

Job: _____

_____

Report To _____ Time _____

Tons _____ Hours Req'd _____ Finish Time_____

Park _____ Foreman _____

TRIP REPORT

	TIME			Weight	Materials	Customer
	Finish	Start	Waiting			

M-503

Gasoline ____ gals Speedometer Rdg _____

Oil ____pts Helpers Clock No _____ Hrs ___

The Truck Condition Report below is to be completed by the Driver on Fridays or any day when repairs are necessary: Check each item which is O.K.

Radiator	_____	Drive Shaft	_____
Radiator Grill	_____	Universal Joints	_____
Motor	_____	Front Axle	_____
Carburetor	_____	Rear Axle	_____
Ignition	_____	Brakes	_____
Generator	_____	Rear Wheels	_____
Starter	_____	Steering	_____
Wiring	_____	Tires	_____
Battery	_____	Frame	_____
Horn	_____	Fenders	_____
Taillights	_____	Windshield	_____
Hood	_____	Mirror	_____
Headlights	_____	Body	_____
Stop Light	_____	Tarpaulin	_____
Clutch	_____	Fire Extinguisher	_____
Transmission	_____	Hoist	_____
Miscellaneous	_____	Forks	_____

Accidents: _____

Damage: _____

Date _____ 195___ _____ Driver

TRUCK ORDER FORM is an 8" x 5" pink sheet. Front side is left; back side is right.

THE E. B. EDDY COMPANY
PERFORMANCE AND MAINTENANCE
RECORD OF ALL TRUCKS
For Month Of ..... 195.....

X Note: Does not include drivers wages.

M. H. Superintendent ..... M. H. Manager .....

TRUCK				OPERATING HOURS				DATES OF LAST		EXPENSE PER HOUR			
NO.	MAKE	DESCRIPTION	SPEED READING	PER MONTH	PER GL. FUEL	PER PINT OIL	TOTAL	OVERHAUL	PAINT	X (1) OPER.	(2) MAINT.	TOTAL (1)&(2)	TOTAL MAINT. EXPENSE

PERFORMANCE RECORD includes operating and maintenance costs on all trucks.

on a truck driver report or preventive maintenance period elapsed time as recorded on the vehicle record. This job ticket is completed when repairs are complete and filed according to truck number for reference to amplify details on the vehicle record.

The above three forms are supplemented by regular plant wide pay roll sheets and stores requisitions upon which the mechanics time and material are coded to collect the maintenance costs monthly for each vehicle.

A "Truck Operating Data Sheet" is prepared monthly for each vehicle and forwarded to the garage foremen and manager of material handling. This data sheet indicates the efficiency of the truck maintenance by fuel and oil consumption and cost of maintenance. It furnishes an accurate basis for estimating controllable expense for every trucking operation. Also the time to replace a vehicle for which the maintenance costs have increased beyond economical limit can easily be ascertained from this report.

Results Obtained

I have been responsible for the operation of a fleet of sixty vehicles for some five years, part of the time without an individual truck maintenance cost control system. Certainly the small expense necessary to operate the system is warranted in that it removed guess work from our maintenance operations and costs. Maintenance costs were 17 percent higher per year without individual truck control although operating hours were constant within plus or minus 2 percent.

The remaining feature which contributes to good maintenance is the ability of the mechanics and their facilities. The mechanics (and electricians) must be equipped by experience and training to carry out any repair necessary, because there are never sufficient spare vehicles *with particular attachments* to allow prolonged down time. The shift mechanic is not satisfactory who through lack of training must shut down a truck and hold it to "send it out" for repair the next day. The mechanics must also be reliable, because they are required to diagnose trouble and frequently repair a vehicle in the production area remote from the supervision of the maintenance foreman.

Repair Facilities

Under the heading *facilities* fall several items in addition to the repair shop. The latter should be large enough to accommodate a vehicle for each mechanic working at any one time. It should be equipped with basic tools, such as jacks, vehicle elevator, tire repair tools, wrenches, electric drills, en-

Foreman

M-625 Truck No. ____ THE E. B. EDDY COMPANY
TRUCK REPAIR JOB TICKET
Date 195
Account Numbers
Oil Change ___ ___ pts. Minor Inspection ___ Wash ___ Labour ___
Lubricate Chassis ___ Major Inspection ___ CH Time ___ Material ___

Miscellaneous Repairs ___

Estimated Hours M.H. Supt. MH Man.

Repairs Completed	Part Nos.	Hours

Date ____ 195 ____ Mechanic ____ Clk. No. ____

Foreman

JOB TICKET FOR TRUCK REPAIR (above) is issued by garage.

M-604 THE E. B. EDDY COMPANY
TRUCK PERFORMANCE & MAINTENANCE COST REPORT Month ____

Truck No. ____ Make ____ Type ____ Cap. ____ tons Driver ____

Operating Report for	Mon.	Year	Life	Expense Report for	Mon.	Year	Life
Mileage				Garage Labour Expense	$	$	$
Operating Hours				Garage Material Expense			
Gasoline in gals.				Variable Maint. Expense			
Operating Hrs. per gal.				Var. Maint.Exp./Oper.Hr.			
Oil in pts.				Fuel & Oil Expense			
Operating Hrs. per pt.				Fuel & Oil Exp/Oper.Hr.			
Oil Changes				Tot.Var.Exp.(less Dr.Wages			
Minor Inspections				Tot.Var.Exp/Oper. Hr.			
Major Inspections				Var.Exp.(Incl.Wages)p.Hr.			
Hours Lost In Garage							

DETAILS OF MAJOR REPAIRS

DETAILS OF DAMAGE DUE TO ACCIDENTS

Condition of Truck

M.H. Superintendant ____

M-604A MAINTENANCE REPORT FOR TRUCK NO. ____

DATES OF LAST

	Mon.	Year		Mon.	Year
Wash			Tire Air Press. Check		
Tire Replacement			Battery Terminals Cleaned		
Tire Repair			Battery Water Added		
Oil Change			Battery Changed		
Oil Filter Cartridge			Motor Overhaul		
Radiator Coolant			Spring U Bolts Tightened		
Transmission & Diff. Oil			Painted		
Wheel Brg. Grease					

TRUCK PERFORMANCE AND MAINTENANCE COST REPORT. Front (top) and back (bottom).

gine cleaning equipment, welding and body repair equipment. However, of the same importance is the cleanliness and orderliness of the repair shop. This is promoted by the provision of bright lighting, adequate heating equipment and tool and spare part storage cribs. A disorderly, greasy repair shop will no doubt result in haphazard, unreliable workmanship.

A great deal can be said for a central repair shop to which all vehicles are to be delivered for oil chances, greasing and repairs. In spite of the fact that only 17 of our 46 gasoline operated vehicles are housed within the garage and repair shop, we feel that we must build up our fleet of spare vehicles to the point that will permit all vehicle service to be done in the central repair shop at the E. B. Eddy Company. The cost of transportation of the vehicle to the shop is less than the cost of the multiple transportation of the mechanic to the production area. The advantage of making repairs to both electric and gas trucks and changing oil, where convenient facilities are available, is obvious.

Spare Parts

The number of spare parts which should be kept on hand depends upon two factors, namely, frequency of demand and availability from outside sources. Our experience has indicated that common parts which are available at local automative supply houses are not required, but any special part used more than once per year should be carried on hand. The number of each to be carried in stock should equal one year's supply.

To summarize this article, the way to give good truck service is to organize good maintenance. This includes the establishment of good team work between the production superintendents, maintenance foreman and drivers.

NEWS OF CONVERTERS

OF PAPER AND PAPERBOARD

Flintkote Buys Insulrock

As the first step in its recently announced $20 million expansion program, Flintkote Co. has acquired for cash the Insulrock Corp., a maker of cement and wood fibre building slabs, according to an item in *The Wall Street Journal*.

Insulrock has plants in Linden, N. J., and Richmond, Va., and according to I. J. Harvey, Jr., Flintkote president, the newly acquired firm's volume is currently running at a $6 million annual rate.

Earlier this week Mr. Harvey indicated in Flintkote's report to stock holders that "plans for the manufacture of new products, the expansion of production facilities for our more profitable items and the acquisition of new business" were in prospect for this year.

Flintkote present principal building material products are made from asphalt and asbestos. The addition of Insulrock represents a completely new product line.

New Cigaret Package Made by Gardner

Gardner Board and Carton Co., Middletown, Ohio is introducing to the tobacco industry a new one-piece, nonfold "Snapak" cigaret package.

The new package has three advantages: 1) No. extra paper insert is necessary. 2) "Snapak" blanks can be run on American-made packaging machines after inexpensive conversion. 3) Gluing of the carton is held to a minimum and is accomplished in one folding-gluing operation.

The hinged top of the carton closes neatly, firmly and completely because of a friction-closing feature.

Gardner pioneered the development of hard-box cigaret packages during World War II. These were the forerunners of "Snapak." At the time, no cigaret packaging machine in use could handle the new type of carton.

A year ago, Gardner went to the American Machine and Foundry Co. with the machine problem. With Gardner's help in designing and financing, AM&F's 3-79 packaging machine was adapted to operate at 120 filled cartons a minute.

New England Container Expands

The New England Container Co. of Chicopee, Mass. plans a $51,000 addition to present quarters. Building Inspector Joseph Ducharme has issued a permit for erection of a one-story building, 208 by 52 feet, at the rear of present quarters. Ernest F. Carlson of Springfield is architect and builder.

Cream in Corrugated Box

C. F. Peterson, general manager of the creamery in Galva, Ill. sees the end of the 5 and 10-gallon cans for cream. His company has developed and patented a new method of handling cream in plastic bags and corrugated boxes.

Hygrade Completes Plant

Hygrade Containers Ltd., a subsidiary of Canadian International Paper Co., has completed its $2.8 millions corrugated shipping container plant at Pointe-Aux-Trembles. It will employ 250 people when production reaches capacity.

J. T. Wolley, general sales manager of Hygrade, has been appointed manager. He also retains his other post.

Hygrade also has a plant in London, Ont., which with the Montreal operation will produce some 50,000 tons of shipping containers.

New Officers of General Fibre Box

General Fibre Box Co., manufacturers of corrugated shipping containers, announces the folowing changes in officers: Clarence J. Schoo, who has been president of the company since its inception in December, 1919, was elected Chairman of the Board. S. E. Rossetter, who has been vice-president of the corporation since January, 1929, was elected president and treasurer. C. Wade Hollingshead, who has been a vice-president of the corporation since February, 1954, was elected vice-president and clerk of the corporation. R. P. Wollenberg of Longview Fibre Co., Longview, Wash. was elected vice-president.

Hano Elected President Of Marvellum Co.

Robert Hano has been elected president of the Marvellum Co., Holyoke, Mass.

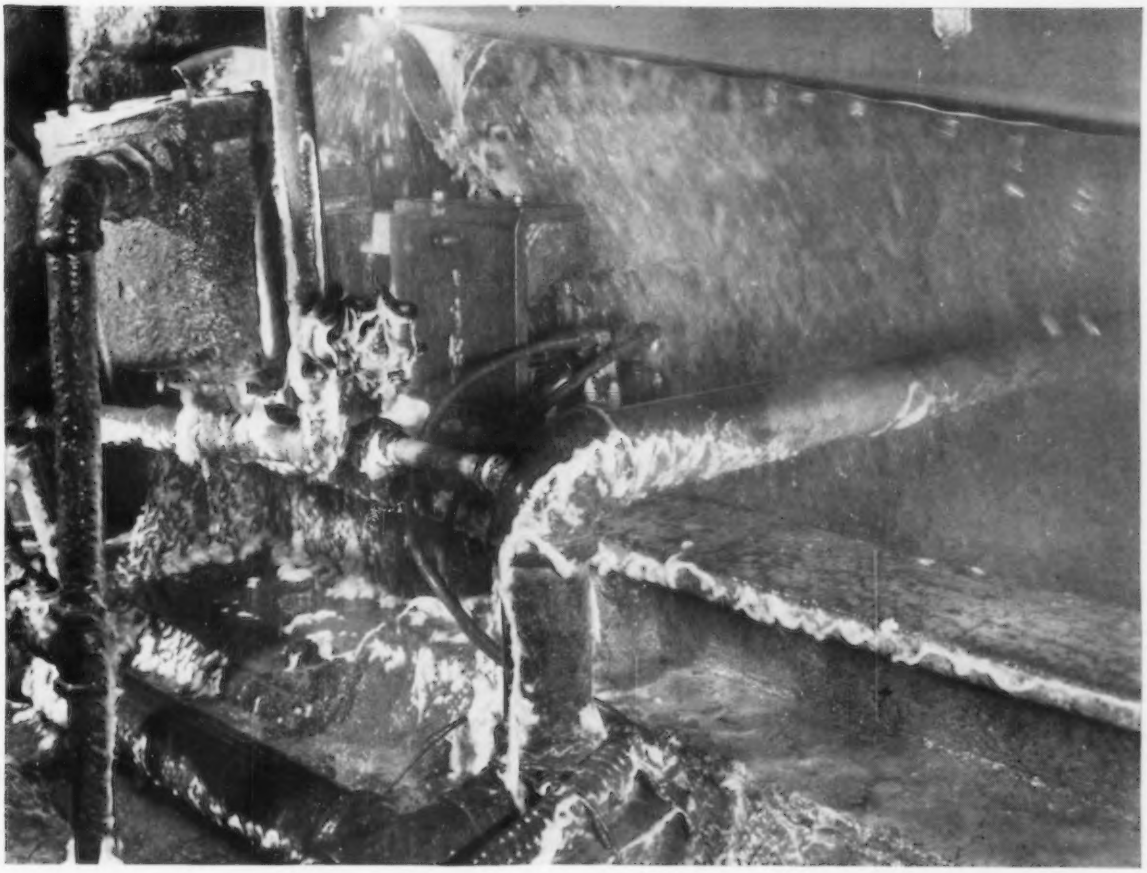
He succeeds the late Stephen Florio, who died suddenly of a heart attack on October 26 at the age of 47. Mr. Florio was president, treasurer and general manager of Marvellum at the time of his death.

Mr. Hano was elected general manager on November 1 and the vacancy in the presidency had existed until the annual meeting.

Atty. Abraham Greenspan Municipal Gas and Electric Dept. commissioner, was elected treasurer and clerk. Assistant treasurers elected were George Webster and Paul E. Allain.

Directors reelected were: Francis C. Heywood, Robert Hano, Atty. Greenspan, Otto E. Dreikorn and Atty. John S. Begley. Mr. Heywood was reelected chairman of the board.

Mr. Hano has been a director of Marvellum since 1939. He was serving the company in a consulting capacity at the time of Mr. Florio's death. Early in 1955, he resigned as treasurer, general manager and director of the Philip Hano Co., Inc.



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Recent Pulping Trends in Scandinavia

Erik Hägglund

This review by an eminent pulping authority was specially prepared for Paper Trade Journal.

The technical evolution of the pulp industry—like most other industries—has not been characterized by a steady progress but rather by more or less stepwise changes followed by periods of consolidation. Necessity often creates inventions and with this industry urgent needs have often brought about epoch-making changes in mill practice.

In Scandinavia, Sweden has led the way with many new pulping developments. For example, the introduction of the SS system in kraft mills whereby a great stride was taken forward to better heat economy in the chemical recovery. This was further more improved some decades later by the introduction of the Babcock-Wilcox furnace system, developed in Sweden at the Mo & Doms jö kraft mill at Husum. Another example is forced circulation in sulphite digesters launched by a Norwegian inventor but first carried out in practice at the Korsnäs sulphite mill.

Of great importance was the introduction, in the early thirties, of bleached kraft production, of high brightness and strength. This was first done on a large scale at the Skutskar mill of Störa Kopparberg and further developed by use of chlorine dioxide bleaching at the previously mentioned mill at Husum. As the chlorine dioxide patent has now expired in Sweden, much greater use of this bleaching method is to be expected.

Rayon Pulp

The production of sulphite rayon pulp expanded rapidly in the twenties in Sweden and has since then grown continuously with the increased knowledge of the factors influencing the quality of the pulps for various chemical purposes. During the war the Uddeholm kraft rayon pulp was introduced, inspired by results originally obtained in Germany on the combination of acid pre-hydrolysis and kraft cooking. With this process the mills were not held as before, to certain wood species and could without any trouble use pine instead of spruce which is scarce in many parts of Scandinavia. The excellent quality of this pulp, particularly suitable for rayon tire cord, has doubled the production during the last few years. Undoubtedly this success inspired the efforts made particularly in U.S.A. and lately in Mexico to apply prehydrolysis to production of high-quality rayon pulps. It must be remembered however, that the manufacturing costs are essentially higher than with the sulphite process. This is understandable because of the considerably lower yield of pulp and also because the process itself is more costly to operate.

An interesting item in the rayon field, still in its experimental stage, is the sulphite rayon pulp from birch produced by the Doms jo Co. Long ago, the author in cooperation with Billerud, proved that birch will give an acceptable rayon pulp. The quality has now been improved, chiefly in respect to the removal of extractives in the pulp which cause certain filtration troubles.

Dr. Erik Hägglund, author of this article, is probably the world's leading pulping authority. From 1935 to 1955 he was director of the Central Laboratory of the Swedish Cellulose Industry and is now head of the Dept. of Wood Chemistry, Swedish Forest Products Research Society. Dr. Hägglund is the author of the book "Wood Chemistry" and some 300 monographs, research reports and technical papers. Dr. Hägglund has been a world leader in theoretical research on wood pulping but he is unusual in that at the same time he has kept in close touch with practical pulping procedures and practices.

The Wood Problem

During the last decade the pulp industry in Scandinavia, and to some degree in Finland has had to work under the pressure of apparent wood shortages as indicated by estimates of the pulp wood resources. However, recent calculations have shown that these resources are greater than previously estimated. Further, we have the increased timber volume available as a result of far-reaching improved forest practices, whereby regrowth has increased far more than previously anticipated. This makes possible an increased pulp production, which may in the future amount to one million tons per year for Sweden and Finland. Several new kraft mills are already being built and several existing mills have decided to expand their production

considerably. As a part of the general picture these mills plan to bleach most of their pulp.

A recent survey of available quantities in Sweden of small-size wood from thinning operations, saw mill waste and technically damaged wood, shows that of the total yearly volume of 21 million cu. ft., around 7 million cu. ft. is now being utilized and around 15 million cu. ft. and may eventually be utilized. The additional volume thus available consists one third of softwoods and two thirds hardwoods. These are together sufficient for a pulp production of 500,000 tons. The difficulties in asembling and using this wood are chiefly two kinds.

- First we have the economically difficult problem of cutting and transporting the small size wood.
- Second the barking problem is difficult to solve.

Cost of Small Wood

The costs of cutting and handling this wood increases sharply, investigations have shown as log diameter gets smaller. These costs for spruce and pine, which are not completely barked in the forest, amount to (1953-1954) around 5 cents per cubic foot solid measure (without bark) with a stem diameter of 4 inches. The costs are half of this if the diameter is increased to 6 inches and only one third with sizes of 10-14 inches. If the wood is completely barked in the woods costs are doubled and too high for consideration. Barking therefore has to be carried out with machinery at the mill, which will be discussed later. High costs are caused by the various operations involved in the wood handling. They consist of assembling, piling, loading, and unloading when transported to motorable roads or floatable watercourses and includes loading on trucks or railway cars. As is to be expected, these costs rise sharply with smaller diameter wood, as shown in Table I.

With regard to transportation of the small size wood, it can be said that it

TABLE I

Stem, middle diameter (inches without bark)	1.5	2.4	3.2	4
Costs of piling/cents cu. ft. solid measure with bark	1.6	0.9	0.6	0.5
Costs of loading and unloading of unbarked wood	2.7	1.7	1.2	0.5
Costs of loading on trucks	3.7	2.3	1.5	1.2
Total cents/cu. ft. solid measure without bark	8.0	4.9	3.3	2.2

TABLE II

Diameter at breast height, inches	2		3.5		5	
	unbarked	strip barked	unbarked	strip barked	unbarked	strip barked
Cutting (not including stacking)	44	50	28	34	24	33
Handling (stacking, loading, unloading)	29	27	27	26	24	23
Hauling (as indicated above)	27	23	45	40	52	44

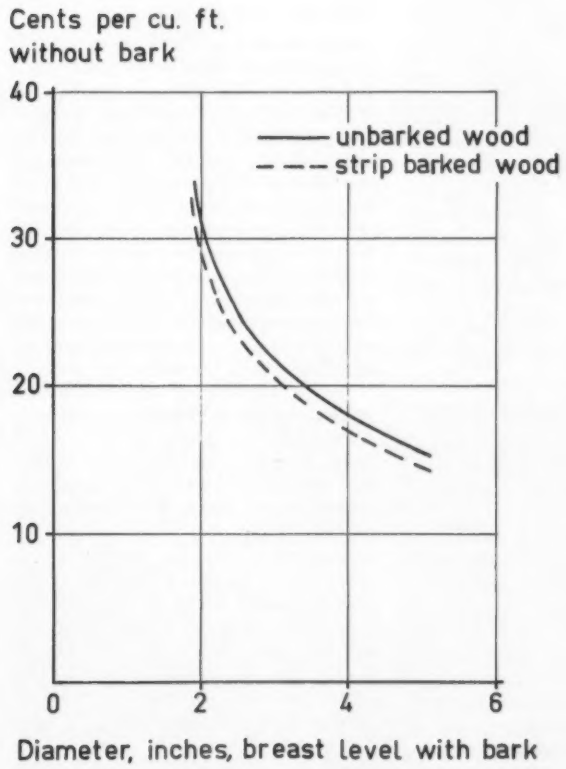


FIGURE 1—CALCULATED COST AT MILL OF 10 FT. SOFTWOOD LOGS from young stands in southern-middle Sweden, 1 mile with horse, 12 miles with truck, 100 miles on railway. Minimum top diameter 1¼ inch without bark. Cents per cubic foot without bark.

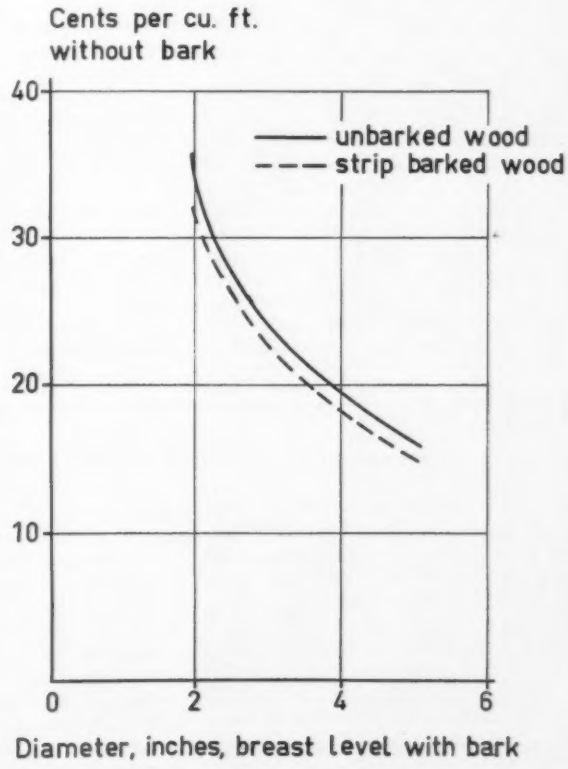


FIGURE 2—CALCULATED COST AT MILL OF 10 FT. BIRCH LOGS from young stands in southern-middle Sweden, 1 mile with horse, 12 miles with truck, 100 miles on railway. Minimum top diameter 1¼ inch without bark. Cents per cubic foot without bark.

costs as much as the regular size pulp wood calculated on a per ton basis. The cost naturally depends on how far the wood must be hauled with horses from the forest, plus the hauling distance by truck or by railroad. In a case where the hauling distance with horses is one mile, the truck haul 12 miles and the rail haul 100 miles, the total cost of 10 ft. logs delivered at the mill is shown in Table II as percentages.

What is the actual total cost of 10 ft. softwood and birch wood in small diameters delivered at the mill? The curves in Figures 1 and 2 apply to southern and central Sweden, with the average hauling distances cited above.

The costs for the birch are shown to be somewhat higher than for softwood. If the average diameter is 2 inches instead of 5 inches costs, are doubled and amount to 34 cents per cu. ft. solid measure (without bark). Note that no stumpage costs are included. It is obviously quite important that the barking costs at the mill are kept low. Manual barking in the forest is consequently out of question.

Barking The Big Problem

In recent years a great deal of work has been devoted to finding a cheap and efficient method of barking small size wood at the mills. Mechanical knife barkers are out of question because of the high wood losses. Barking in rotating drums is not suitable as the small logs are broken. However, satisfactory results have been obtained with friction barking using the Hillbom principle e.g. the Waplan or the Finshyttan system where the wood is soaked in hot water before the barking or hot water is added during barking. These systems operate batch-wise taking a charge of around 500 cu. ft. gross volume of 10 ft. logs which is debarked in 20-30 minutes. The barking chamber has a live screw or chain bottom which gives to the crosswise lying logs a revolving motion. Wood loss is negligible. Chipping of small size wood is troublesome but can be done with satisfactory results.

It should be noted that the solid measure percentage is lower with small dimensions than with normal wood. Generally 1 cu. ft. small size wood measure corresponds to 2/3 cu. ft. of ordinary wood. This involves correspondingly higher costs in handling the wood.

As a general conclusion regarding the possibilities of utilizing the small diameter wood in pulp manufacture it may be said that it can be advantageously done if the freight costs are not too great and barking is carried out in an efficient manner. The forest owner cannot plan on any stumpage value at all from the small dimension wood but gains the great advantage of increased forest regrowth because of the thinning operation. Considerable amounts of small dimensions are already being used by the pulp mills.

Hardwood Utilization

Throughout the world hardwoods have always been considered as an inferior raw material for the manufacture of paper pulp, the blame generally being put on the short length of the hardwood fiber. Naturally this is of no importance when the pulp was used in rayon manufacture. In Germany where there existed an abundant supply of beech wood but spruce was scarce this question became very important and gave rise to considerable, production of sulphite rayon pulp from beech which is still maintained. In other European countries production of this type of pulp was also started. It is now successfully manufactured in Austria, Italy, and France. In Spain, eucalyptus has recently been utilized for this same purpose.

In the Scandinavian countries the predominant hardwood species is birch. The figures in Table III showing the composition of Scandinavian forests may be of interest.

In many places utilization of hardwoods, primarily birch, has not been practiced to any great extent because of the difficulties encountered in hauling and barking. However two of the leading pulp manufacturers in Sweden have for many years made large quantities of kraft (Mo and Doms jö Co. and The Swedish Cellulose Co.) as well as sulphite (Mo and Doms jö Co.) pulp from birch. It should be noted that the former pulp in bleached form has a strength comparable to that of bleached spruce sulphite pulp. Even bleached birch sulphite pulp may be produced with equally good strength properties. The Mo and Doms jö Co. has even managed to utilize birch sulphite pulp in certain rayon grades. Unbleached birch sulphite pulp has a low brightness which makes bleaching necessary.

The rapid expansion of the semichemical pulp industry in the U.S. has been followed with great interest in the Scandinavian countries but has so far only resulted in a small beginnings here. Several plants are now planned, all but one integrated with a kraft mill in order to recover the cooking chemicals.

New Barking Techniques

The barking problem is always of great interest. High wood prices have stressed the necessity of carrying out barking without appreciable wood losses. This is attainable with drum barking and such installations have almost completely replaced previously used knife barkers, which may still be advocated only in a few cases e.g. in the manufacture of strong sulphite pulp of very high cleanliness. The improved design of modern centrifugal pulp cleaning equipment has however, made possible manufacture of high cleanliness pulps even from incompletely barked wood.

During and after the war, studies were made of barking of single logs but without cutting tools to avoid wood loss. A factor greatly stimulating these studies was the possibility of carrying out the barking in the forest. When floating unbarked spruce wood there occurs, depending on the time the log has been in the water, a change within the annual rings just inside the cambiun so that this wood layer cannot be pulped in the normal way with sulphite cooking acid. The reasons for this are well known. This "water damage" causes a decrease in yield of pulp and also creates the more serious problem of separating the incompletely digested dark colored shives from the pulp in the screen room. These shives are not always removed from the pulp in the bleaching process. These difficulties may be overcome, it seems, by

TABLE III

Volume in millions of cubic meters, solid measure (with bark)

	Sweden x)		Norway xx)		Finland xx)	
	Volume	%	Volume	%	Volume	%
Spruce	830	45	196	53	624	46
Pine	738	40	103	28	442	32
Hardwoods xxxx)	277	15	71	19	305	22
Total	1845	100	370	100	1371	100
Annual regrowth	63 xxx)		12		41	

x) recent estimate xx) old estimate xxx) previous estimate 47 xxxx) approximately 80% birch

Area covered by forests

	Sweden	Norway	Finland
1000 acres	55600	18500	53600

adding centrifugal cleaners to the screen room.

The friction barking principle has during the last decade drawn considerable attention among barking machine builders and several designs have been developed which have proven very successful. New equipment has continuously been introduced involving improved design of details. The barking chains of the original machine ("Astrom") have thus been replaced by rotating friction tools pressing against the log with springs and centrifugal force (Soderhamn, Sund, Mira, Skoglund), or pneumatically controlled (Anderson). In the newest design in this field—Soderhamn "Cambio" barker-light-weight friction tools and pressure is applied through rubberband tension.

Sulphur From Pyrites

The sulphite mills obtain up to 60 per cent of their sulphur dioxide requirements by burning pyrites. The mechanical pyrite hearth roasters are getting much competition from the modern type flash roasters. Successful results have been obtained in sintering the cinder whereby the residual sulphur is removed and the ash is obtained in a more easily handled state for further use in iron manufacture.

The amount of pyrite ash produced by sulphite pulps mills amounts to 130,000 tons per year. These cinders contain: 64 per cent iron, 0.5-2.5 per cent sulphur and small amounts of zinc, copper, phosphorus, and arsenic. They thus constitute a rich iron ore. However, the various troubles encountered at the steel works in utilizing this product in its original state have given it a low and very fluctuating price on the market. By sintering the cinders most of these difficulties are overcome. At the Mo and Doms jö mill at Alfredshem a sintering plant of 50 tons per day ("Celleco") has recently been started up working with iron sulphite as a fuel and yielding an agglomerate suitable for blast furnace smelting or steel refining.

Cooking Techniques

The Richter-Kamyr continous kraft cooking method has drawn considerable interest in Scandinavia as well as abroad. These digesters are being used in plants in Sweden, Finland, Italy, France, and Japan. There are plans for some installations of these digesters in the U.S. By now most troubles originally met in these plants have been overcome. The future will show how these cooking methods can compete with existing procedures.

One Swedish pulp mill has studied the possibility of introducing continuous sulphite cooking. As is easily understood, the difficulties encountered here are greater than with continuous kraft cooking but the results obtained so far have resulted in the erection of a fairly big pilot plant here in Sweden. Continuous cooking of neutral sodium sulphite semi-chemical pulp according with the Kamyr equipment is now being introduced into a plant being built integrated with a kraft pulp and paper mill in Sweden. Continuous cooking using Pandia equipment has been carried out for some years at one mill in Finland. Continuous cooking of semi-chemical pulp by the Asplund-Defibrator method is being installed in one mill in southern Sweden.

Developments in Bleaching

Sulphite as well as kraft pulps are being bleached in steadily increasing amounts. The Kamyr system is predominant in this field. Final stage bleaching with chlorine dioxide is increasing and is not only used with kraft pulps but also extensively with sulphite pulps-paper pulps, as well as rayon grades for combined purpose of eliminating dark shives, mainly originating from "water-damaged" wood, and bark particles as well as obtaining a pulp with as little color reversion as possible.

A recent survey studied the three different methods of chlorine dioxide manufacture (H. Tyden, Swedish paper J. Vol. 57, No. 16, 583-590, August 1954) namely the "Persson-Angel" and "Kesting", and the "Holst" method. This study compared their construction and manufacturing costs under Swedish conditions, the plant being situated at a kraft mill. Neglecting the license costs and profits, the manufacturing costs in the three cases are 6.8, 5.7, and 5.9 cents per pound at a yearly production of 1500 metric tons.

Much has been spoken and written during recent years about the recovery of pulp mill spent liquors by evaporation and combustion. In this field considerable development work is being carried out.

Sulphite Liquor Recovery

This is particularly true with the sulphite waste liquor. It is recovered in most instances by displacement in the digester after completion of the cook. This technique has been practiced here a long time. A considerable improvement involves the so-called series-displacement, in those cases where the extended time required is not objectionable. Even better results are obtained by displacement in the blow pits which must be built to stand a temperature of around 95° C. In one special case this has been accomplished by lining the pits with concrete and stainless steel plate fastened to wooden ribs in the concrete. The perforated bottom and its support are designed to avoid contact with the wooden material.

Before blowing the space under the drainer bottom is filled with cool liquor and this liquor is also added in the blow line during the blow. Thus the pit temperature is prevented from rising above 100° C, which would cause evaporation and thus heat losses. A temperature of 95° C is desirable. One rayon pulp mill using weak liquor first and then water, recovers over 90 per cent of the solids in the waste liquor, amounting to 3200 lbs. per ton with a dilution of 10 per cent.

Sulphite Liquor Evaporation

Much has been published on the problem of sulphite liquor evaporation and therefore it is unnecessary to relate the early development phases. It will be remembered that the first evaporator installations were of the vacuum type, in which better control of the scale formation is obtained.* The Rosenblad 5-stage vacuum equipment with the channel switch system in each effect gives little trouble in this respect. Test results are given in the Figure 3. This means that the effect which previously has had the highest steam pressure will get the lowest pressure after the channel switch. With this method of evaporation, it is not enough to switch channels to prevent incrustation. The scale formed here consists not merely of calcium compounds but also of condensation products. This scale must be removed from time to time by rinsing with nitric acid which procedure nowadays is a trouble-free operation.

In order to diminish the calcium scale formation it is preferable to carry out the evaporation so that all stages are fed with liquor of high content of organic material, that is over 35 per cent. This measure is advantageously supplemented by adding relatively large amounts of gypsum slurry which may be taken from the liquor neutralization tanks of the alcohol plant.

Efforts were made early to combine liquor evaporation with the alcohol plant in order to lower the costs of alcohol production. As is well known distillation costs constitute the dominating factor. The solution of the Swedish firm Ramen Patents consists of evaporation of the fermented liquor, the alcohol-containing condensate being drawn off from the vacuum part of the system, where it has an alcohol content of 2.5-3 per cent. The alcohol is then recovered from this condensate by distillation. It has proven even more advantageous to introduce a stripping column as a special part of the distillation plant. Thereby a condensate is obtained containing 12 per cent alcohol

*Extracted from a paper by B. Brunes, Swedish Paper Journal 57 (1954) 317.

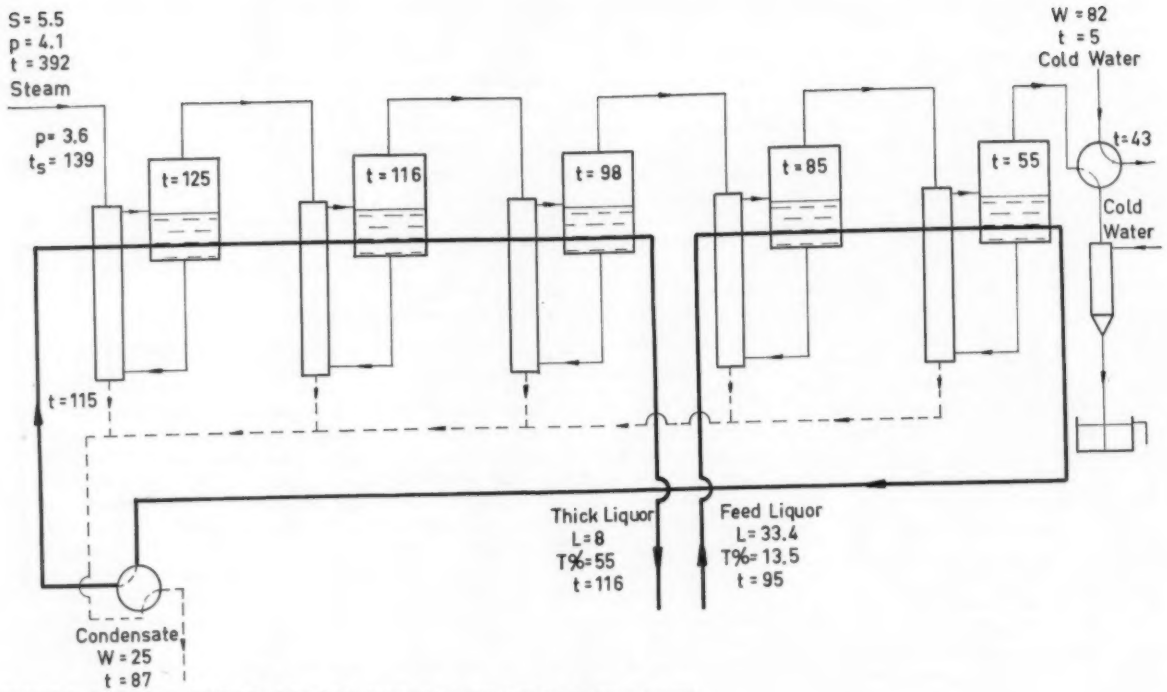


FIGURE 3—FLOW SHEET, 5-STAGE VACUUM EVAPORATION PLANT.

S Steam to plant	metric tons per hour	p Pressure	atmospheres
L Liquor Feed	" " " "	t Temperature	°C
W Water (condensate) Flow	" " " "	t_s Saturation Temperature	°C
T Total Solids	%		

and this condensate is sent to the rectifying still.

It should be mentioned that during recent years the thermo-compression evaporation method has again been seriously considered, but has so far, however, in Scandinavia only resulted in one installation, by Escher-Wyss at Borregaard in Norway. It is advantageous to carry out thermo-compression evaporation between 100° C and 120° C. Heat pump evaporation is generally profitable if the cost of 1 kg. coal exceeds that of 1 kwh.

Escher-Wyss has also converted the evaporator plant of the kraft mill Kaukopää in Finland to thermo-compression evaporation. This installation — which is the first of its kind in the world —uses the biggest heat pump ever made. The plant may also be run as a multiple effect installation in case of a scarcity of electric energy.

Burning Sulphite Liquor

The burning of the evaporated sulphite liquor is carried out in "Loddby" furnaces which consist of an fire brick-lined cylindrical chamber at one end of which is the liquor burner and the other end open to the boiler furnace. Combustion air is introduced tangentially and the liquor is finely dispersed in the chamber with steam or compressed air. Great amounts of ash are formed 8 to 15 per cent of the solids content charged. The ash is very light and follows the combustion gases through the stack. In some cases the ashes may bring about serious air pollution. It has however proven easy to separate the main part of the ash using mechanical dust separators or wet scrubbers. The unrecovered part is so light that it is spread over vast areas thus not causing any damage.

The question of evaporation cannot be considered satisfactorily without going into the problems of heat economy and the profit of liquor evaporation.

TABLE IV

Type of plant	lbs. of coal per ton of pulp: Net heat requirement	Sulphite liquor fuel	Heat gain
Untreated liquor			
5-stage vacuum	360	1250	890
5-stage counter-pressure	100	1250	1100
Fermented liquor (in combination with alcohol production) 5-stage vacuum	300	1040	740

Only a few indications may however be given in this connection.

Installation costs are considerable and amount to approximately four million crowns ($800,000) for a mill of 120 long ton daily pulp production. With the present high coal prices in the Scandinavian countries, there naturally exists a good possibility of paying for the whole evaporator plant in five years. It is presupposed that there already exists a boiler which may be used for this purpose.

It is natural that in countries having very low fuel costs liquor evaporation may not seem very attractive. It may, however, become a necessity for reduction of stream pollution.

Lately wet combustion of waste liquors has drawn considerable interest not only in the U.S. but also in Sweden. The idea is by no means new. Combustion of organic material in solution at high temperature with addition of air or oxygen has been tried repeatedly. Recently this technique has received increased attention mainly from F. J. Zimmermann in the U.S. and K. N. Cederquist in Sweden. The former has successfully treated wasted liquors from a neutral sulphite semi-chemical pulp mill and thereby burned all the organic material. In Sweden, experiments on a small scale have been carried out with ordinary cal-

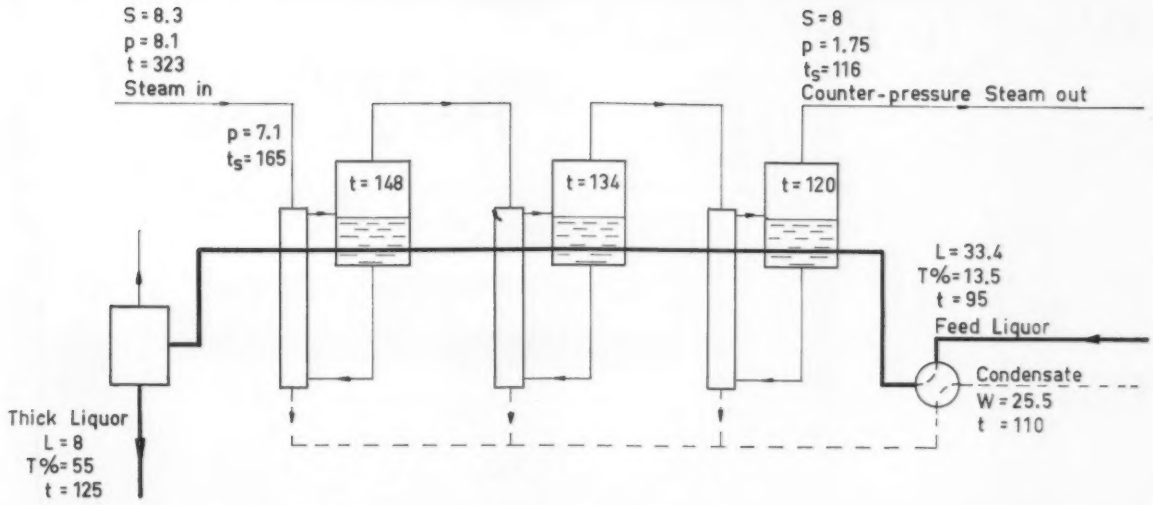


FIGURE 4—FLOW SHEET, COUNTER-PRESSURE EVAPORATION PLANT

S Steam to plant	metric tons per hour	p Pressure	atmospheres
L Liquor Feed	" " " "	t Temperature	°C
W Water (condensate) Flow	" " " "	t_s Saturation Temperature	°C
T Total Solids	%		

This figure shows graphically a Rosenblad counter pressure evaporation system. Switching of channels is applied here as well but is carried out simultaneously for the whole system and not individually with each effect.

cium bisulphite liquor with partial combustion chiefly taking place. Plans are being worked out for a small continuous plant.

Preliminary investigations have shown that wet combustion may bring about advantages in heat economy in comparison with liquor evaporation and burning of the residue in a furnace. On the other hand it requires a great deal of power even if oxygen is used instead of air. Installation costs seem to be considerably higher with wet combustion than with evaporation and burning. However it should be noted that it is theoretically feasible to use liquors of essentially lower content of organic matter than is possible in the evaporation method, which fact is valuable in cases where one wishes to carry the pulp washing further than the previously mentioned 90 per cent with a dilution of 10 per cent.

Sulphite from Pine

For a number of years attempts have been made to produce a sulphite paper pulp from pine containing more or less heartwood. With little heartwood there is no difficulty in pulping pine with a calcium bisulphite cooking acid, as e.g. with the rapidly growing pine in the southern States of the U.S. from which quantities of sulphite pulp, of rayon grade are manufactured.

The reasons for the difficulties mentioned in pulping heartwood have been clarified. This explains the success of the one-stage cook at ph 4.5 (Hägglund) and also the early proposed and patented method by J. A. Graham (1882) which involved a two-stage cook starting at neutral and followed by an acid stage. The two-stage cooking technique was practiced in the twenties in Sweden on a pilot plant scale but could not be realized in practice because of difficulties encountered technically and economically in the recovery of the alkali. Under the guidance of the late engineer S. Sandberg this problem has been studied for many years by chemists and engineers at the Stora Kopparbergs Bergslag (the Skutskar mill) and has led to satisfactory results. The cook is carried out in two stages. First the wood is heated with a mildly acid sodium sulphite solution. After some time the liquor is drawn off and SO_2 is introduced in the digester. After a 3 hour hydrolysis gas-off is started and SO_2 is recovered in liquid state. The total cooking time is 10 hours. The pulp is washed in diffusers and a liquor of 20 per cent solids content is obtained

After neutralization with caustic the liquor is fermented for alcohol production. The fermented liquor is evaporated in a vacuum plant where is used, as previously discussed, a combination of evaporation and alcohol distillation. The evaporated liquor of a total solids content of 52 per cent is burned in an ordinary kraft liquor furnace. The smelt consists of sodium sulphite and sodium carbonate. The dissolved smelt is treated with carbon dioxide, which circulates in the recovery cycle, yielding hydrogen sulphide which is burned to sulphur dioxide and returns to the process. This operation is carried out in three stages. First under pressure, where 90 per cent of the hydrogen sulphide is liberated. The residual hydrogen sulphide is stripped off in a tower with a strong stream of carbon dioxide. Carbon dioxide is liberated from the bicarbonate solution by treatment with sulphur dioxide. In this way the new cooking acid is prepared.

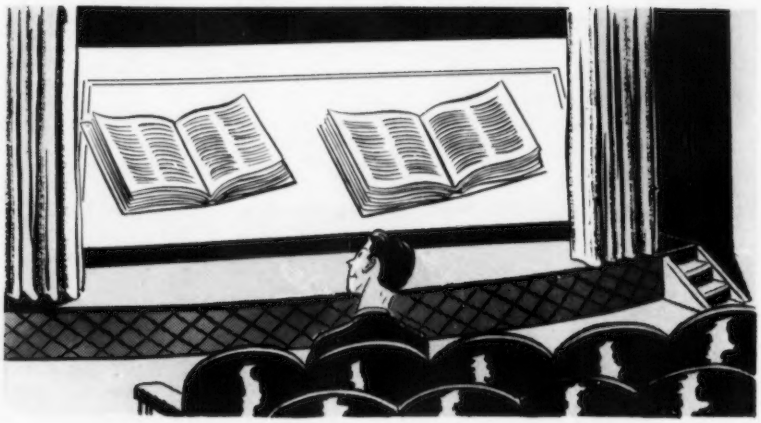
The cook yields a pulp of extremely high (4 per cent) pitch content. This pitch may be removed by treatment with caustic in an amount corresponding to one per cent of the pulp weight. This pulp has proven more easily beaten than a calcium or sodium bisulphite pulp from spruce, which fact may be explained by its high hemicellulose content. The pulp seems to be particularly well qualified for greaseproof manufacture. Because in Sweden pine at present is considerably cheaper than spruce, the pulp cost is lower by 20 crowns/ton ($4/ton).

(Ed. Note: Complete story of this Stora development is in Paper Trade JOURNAL, October 17, 1955).

Want to Read Faster? Here's How

CHAPTER EIGHT

How to preview a selection



A good reader makes his job easier by pre-evaluating his material, using such aids as pattern of writing, visual aids, the title, and subheadings to determine an article's characteristics.

Before you buy a car, you shop around. You look over the various makes and "size up" their appearance, special features, colors, promise of good performance, price, etc. Similarly should you "shop" before you "buy" an article to read. By "shop" in the reading situation, we mean taking a preview. By "buy" in the reading situation we mean settling down and reading the selection as a whole.

A book, chapter or article has certain characteristics just as a car or a suit or a shirt, which you may note in shopping before you read. If you will study these characteristics they will afford you very valuable pre-reading insights.

In some cases the preview will provide you with all of the information that you desire and you won't find it necessary to read the selection at all. In other cases the preview will "whet your appetite," increase your interest and strengthen your personal motive for reading in the latter cases when you actually do begin to read the article, you will find that your pre-reading insight has paved the way for speedier and more comprehensive coverage of the printed page.

Consider the Title

Some techniques to use in making a preview will be discussed in this chapter. The step to always take first, is to study the title. The title holds a world of information. It tells you concisely what the selection is about. It gives you a quick cue as to the topic of discussion. Consider the title carefully. It may be a deciding factor in determining whether or not you want to read the selection. If you decide that you do want to read it, then you have advance information on the subject to be discussed and can read in terms of the promise that the title holds out to you.

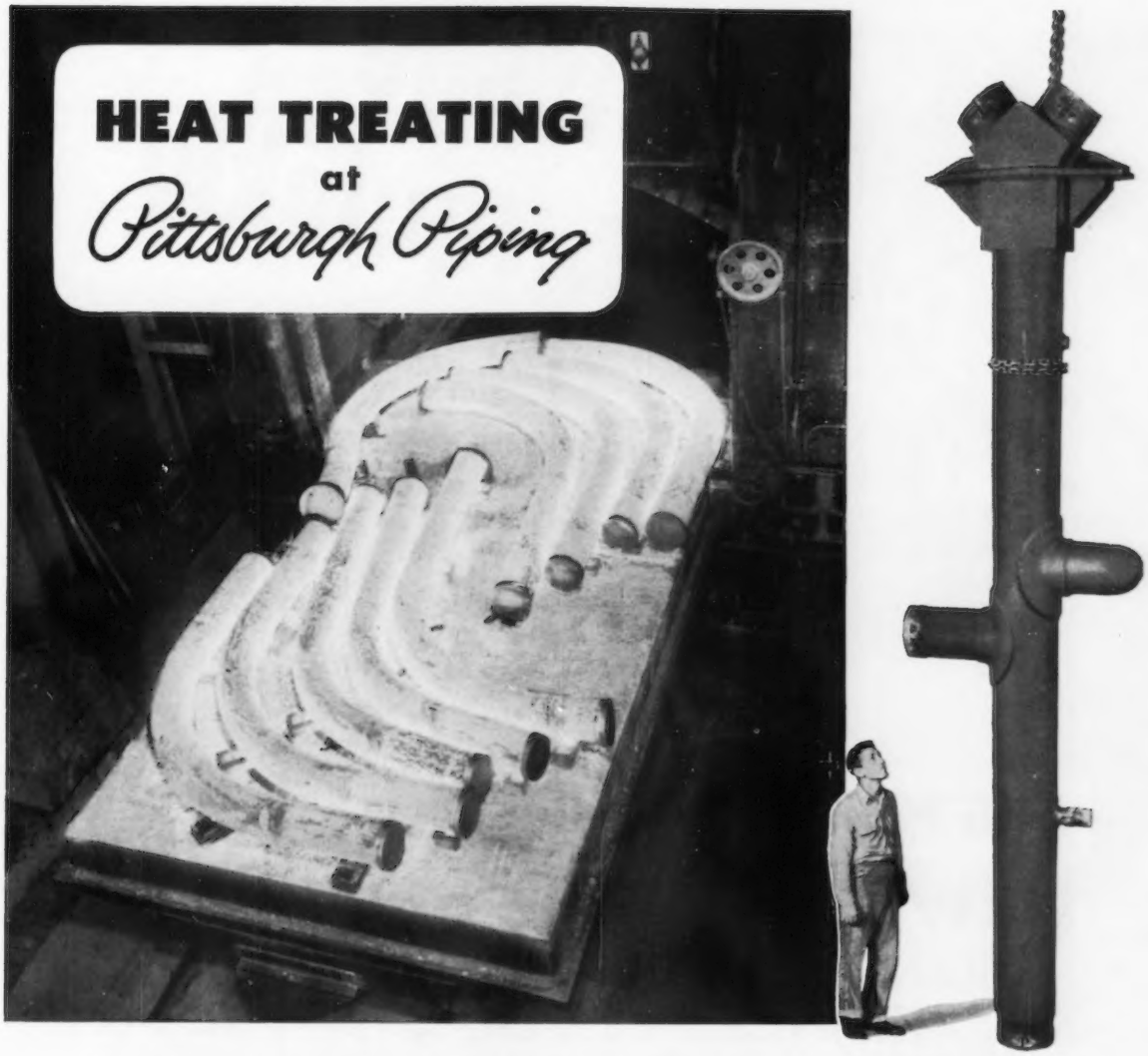
"How To Preview A Selection" is the eighth in a series of articles on reading improvement for adults, offered by Paper Trade JOURNAL as a special service to its readers. The author, Dr. Nila B. Smith, who is recognized as a world authority on the subject of reading, is the Director of the Reading Institute of New York University. The previous installment, which appeared in the issue of February 13, covered the subject of "How To Adjust To Different Patterns of Writing."

Sub-Heads Outline Ideas

Next, glance through the article to see if sub-headings are used. If so, you will find that a quick survey of these sub-headings will be very valuable. You should consider each one for the information which it actually gives or which it implies. Sub-headings are the major topics in the author's outline. They reveal the important topics in the structure of the article as a whole. There will be occasions in which a pre-view of these sub-titles will tell you all you want to know. At other times they will serve as interest-leads to reading the different sections, and as door-openers to better understanding of the text that follows.

Picture Relationships

If any visual aids are furnished, turn your attention next to them, and study these visual aids for their meaning significance. Illustrations may accompany the selection. If so, they will aid your comprehension by giving you a vivid mental picture of people, things and locale dealt with in the context. If maps



ASSURES PROPER TOUGHNESS, DUCTILITY, AND STRENGTH IN PIPING FOR HIGH TEMPERATURE, HIGH PRESSURE SERVICE

Heat treating and stress relieving at Pittsburgh Piping are operations which produce a uniform grain structure, assure consistent mechanical properties, and remove residual stresses throughout the length of each fabricated piping assembly.

P.P.&E.'s modern gas-fired furnace, illustrated above, is a specially-developed design. Time-temperature conditions can be electronically controlled in it for proper heat treatment of each type of metal.

This heat treating procedure is assurance that piping fabricated by P.P.&E. will have the most desirable combination of ductility, toughness, impact resistance, and strength.

PRODUCTS AND SERVICES

Carbon Steel Piping	Forged Piping Materials
Cast Iron Fittings	Headers
Cast Steel Fittings	Manifolds
Chrome-Moly Piping	Pipe Bends
Copper Piping	Stainless Steel Piping
Corrugated Piping	Van Stoning
Creased Bends	Welded Assemblies
Expansion Bends	Welded Stainless Steel Tubing
Flanges	Welding Fittings

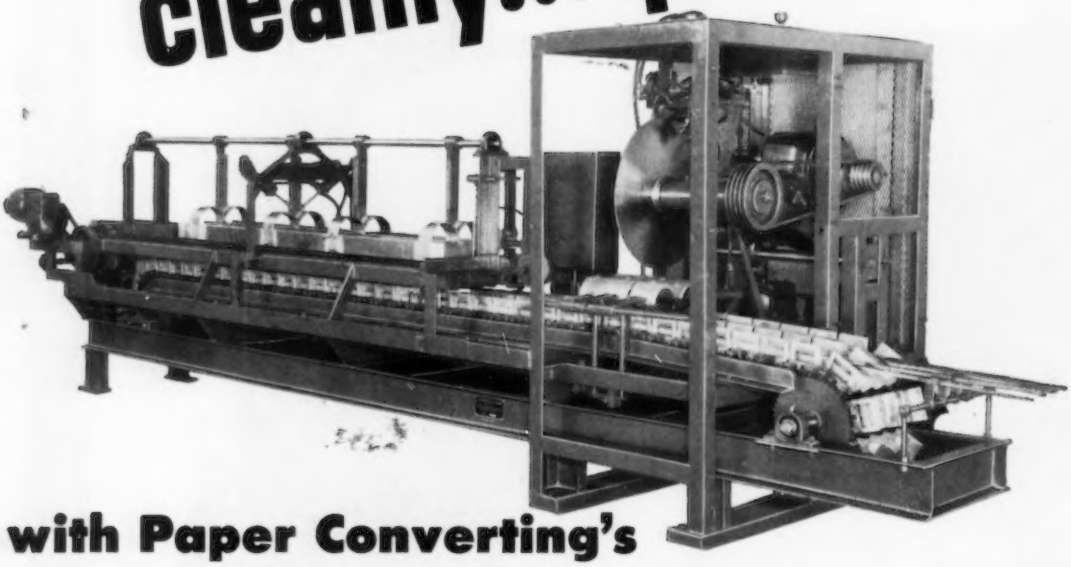
Pittsburgh Piping
AND EQUIPMENT COMPANY
158 49th Street — Pittsburgh, Penna.
CANADA: CANADIAN PITTSBURGH PIPING, LTD.
835 BEACH ROAD—HAMILTON, ONTARIO

OFFICES IN PRINCIPAL CITIES

Atlanta	Whitehead Building
Boston	10 High Street
Chicago	Peoples Gas Building
Cleveland	Public Square Building
Houston	Heights State Bank Building
Los Angeles	1830 North Alexandria Ave.
New Orleans	P. O. Box 74
New York	Woolworth Building
Syracuse	113 So. Salina Street
Toronto	68 Yonge Street
Washington	Wire Building

PP-13

cut toilet tissue cleanly...quickly



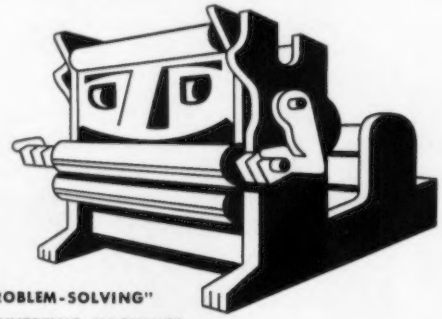
with Paper Converting's NEW Gilbertville Saw

You'll banish "log jams" forever when a new Gilbertville Saw takes over your toilet tissue* cutting. It slices logs of tissue cleanly, quickly—*without binding*—because its conveyor angles just where the saw meets the log. No roll breaking problem! Paper and core trim evenly, free from dust and ragged edges.

Production jumps with a Gilbertville Saw since rewinders run at top speed without slitters . . . breaks diminish . . . rewinder downtime is minimized. Labor and overhead expense are reduced. New men master the rewinder operation with the Gilbertville Saw in as little as *one week*.

Above all, you can depend on the Gilbertville Saw's reliable performance. Trouble-free design and sturdy construction call for minimum maintenance. "No-bind" angle prolongs blade life, and automatic grinding wheels sharpen the blade at scheduled intervals for peak efficiency.

Want to know more? *Just write, wire, or phone collect to learn all about the cost-cutting, log-cutting Gilbertville Saw—another Paper Converting "problem-solving" machine.*

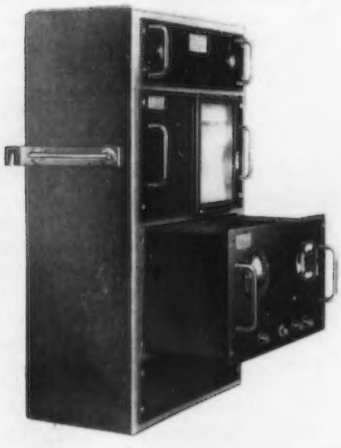


PAPER CONVERTING *Machinery Company* GREEN BAY 7, WISCONSIN

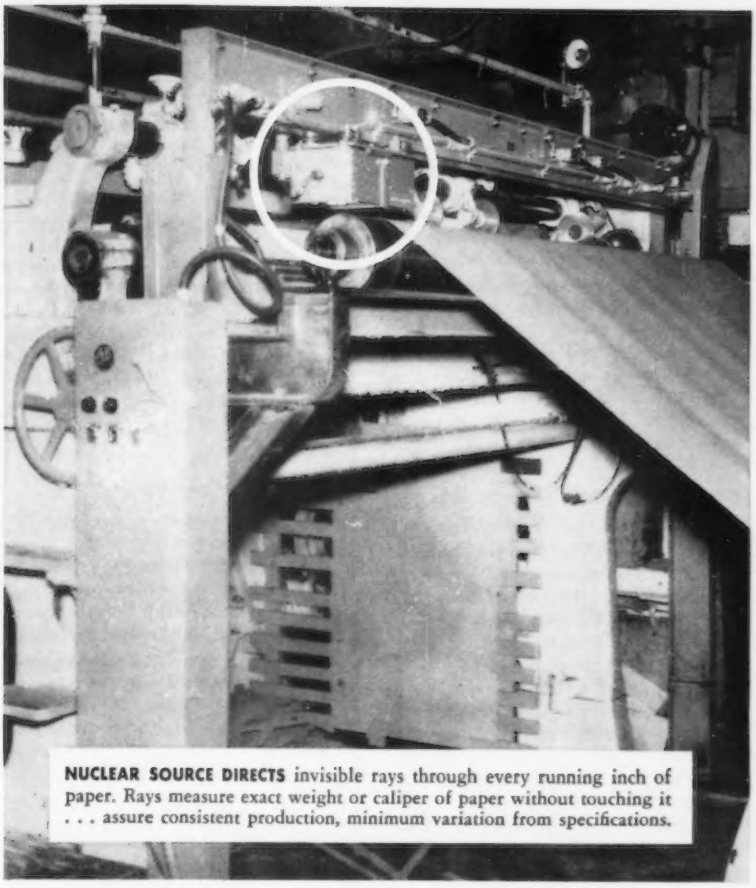
"PROBLEM-SOLVING" CONVERTING MACHINES

*There are Gilbertville Saws available for cutting interfolded toilet tissue, interfolded towels, household roll towels, and other paper products.

MACHINE TENDER adjusts target selector to proper weight specification for each order. Selector acts as constant guide for tender stationed at wet end.

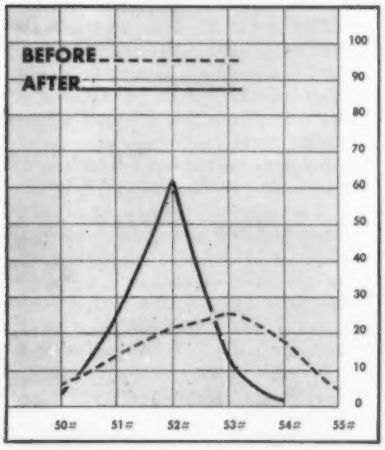


EXCLUSIVE CONSOLE RECORDER features drawer-type construction for easy maintenance. Continuous recorder charts weight of paper during production, provides permanent record.



NUCLEAR SOURCE DIRECTS invisible rays through every running inch of paper. Rays measure exact weight or caliper of paper without touching it . . . assure consistent production, minimum variation from specifications.

NOW . . . HUG WEIGHT SPECIFICATIONS with Curtiss-Wright Control Systems



BEFORE, when hand-weighed tear sheets were used for control, variation was excessive. After installing Curtiss-Wright system, uniformity sharply increased.

Field-proven Curtiss-Wright Basis Weight Control Systems monitor paper weight continuously, record actual production quality, warn immediately if variations occur—even trigger stuff gate controls. The result is roll after roll of on-weight paper, with important savings in production time, pulp and down-grading losses. Order changes can be made faster, and cross-sheet variation reduced as much as 50%. The large choice of mounting designs permits an installation tailored to your space requirements and budget. *For complete details, write Industrial Controls Dept., Curtiss-Wright Electronics Division, Carlstadt, N. J.*

WEST COAST REPRESENTATIVE:
Western Dynamics Co., 444 Dexter Horton Bldg., Seattle 4, Wash.

CANADIAN REPRESENTATIVE:
Electronics Associates, Ltd., 4616 Yonge St., Willowdale, Ont.

Systems Frieseke & Hoepfner

ELECTRONICS DIVISION
CURTISS-WRIGHT
CORPORATION • CARLSTADT, N. J.

are provided, study them. Your reading will be more meaningful if you have precise geographical locations in mind. Often graphs and charts are provided. If so, study these carefully before you read the article, as they will give you a quick grasp of relationships and proportions of data which will be discussed in the text.

As a fourth step, ask yourself what the author's purpose was in writing this article. This question will lead you to an identification of the pattern of writing. A cursory glance should enable you to decide which of these patterns the printed matter represents: sharing-experience, imparting information, opinion-reason, question-answer, conclusion-substantiation.

Structure Analysis

Next examine the length of the paragraphs. Turn the pages quickly and find out if most of the paragraphs are short, medium or long. Remember, each paragraph is a *thought unit*. One idea is developed in each one of them. If there are many short paragraphs this is a fairly reliable indication that the article is heavy with detailed ideas. On the other hand, if the paragraphs are long then the text is "coarse," in other words the number of different ideas which are developed wil not be numerous.

Finally, after you have done all of the things suggested above, make an estimate of how long it will take you to read the article. Count the words in a few lines to find the average number of words per line. Then multiply this number by the number of lines in the article. Once you have estimated the total number of words in the article, decide how long it should take you to read it. Don't be easy with yourself. Set as short a time limit as you think you can possibly meet. Then live up to it!

Practice Exercise

A selection is presented below for your use in applying the techniques which were discussed above. This article is not accompanied with a picture, map or graph, so studying visual aids is one technique which you will not be able to apply in this case. However, you should use all of the others.

Follow these instructions specifically:

1—Study the title.

2—Extract all of the information you can from the sub-headings.

3—Decide upon the author's pattern of writing.

4—Note the length of the paragraphs.

5—Estimate the number of words and set a time limit for yourself. (Keep in mind the pattern of writing and the length of the paragraphs when estimating speed. Both of these factors are important to you in deciding which of your speeds you will use.)

6—Jot down your beginning time and read the selection. When you have finished note your ending time in the appropriate space.

7—Force your speed as fast as you can and still get detailed meanings. This article is of the technical type on which you need more practice at this time. Your comprehension of detailed facts will be checked following your reading of this selection.

Electrical Safety Afforded by Steel Conduit

Each year about 250,000 tons of rigid steel conduit is produced, on the average, to help protect buildings against electric service failures and fires. The conduit is a steel tube which has especially good bending properties. It is installed in buildings to provide passage-ways for the electric system.

Other Types Widely Used

In addition to rigid steel conduit and electrical metallic tubing, other types of steel raceways are made which also have wide application. They include flexible steel conduit and armored cable, surface metal raceways, underfloor raceways, cellular floor raceways and wireways.

Rigid steel conduit is widely used in commercial, residential, industrial and farm buildings. Its use is specified by the National Electrical Code in hazardous locations where explosive atmospheres exist.

Conduit installations are recognized by building officials, design engineers and insurance companies as the safest wiring method. The steel protects the wiring system from mechanical damage, such as cutting or crushing, during the building construction period. Properly installed, conduit seals the entire electrical system against the entrance of water, chemicals and explosive gases or dusts. Steel conduit also confines arcing and sparking that may occur as the result of short circuits or loose connections, and helps to dissipate heat due to overloading of the circuit, thus minimizing the fire hazard.

Rewiring Facilitated

Installations of rigid steel conduit provide flexibility of tenancy in a building by permitting replacement of existing wires with larger ones or the addition of more circuits as the increasing demands of the occupancy require. For example, a large skyscraper in New York was able to convert easily to the needs of a tenant with many electronic business machines by running new wiring through the existing 2½ miles of conduit.

Rigid steel conduit is manufactured from special steel pipe by steel mills and by other fabricators. The tubing is first thoroughly cleansed. The ends are then threaded and chamfered. Finally, the tubing is given a zinc or enamel coating. Zinc coated conduit is given an additional coating of lacquer to provide a hard-smooth interior surface, which facilitates pulling in the wires.

Paper Once Used

The need for electrical conduit began 75 years ago with Edison's invention of the electric light. Early conduit was made of zinc, copper, brass, paper or combinations of those materials. About 1894, wrought iron gas pipe lined with paper was first used for the purpose because it was stronger and good threaded joints were possible. Shortly thereafter, insulated electrical wire eliminated the need for paper linings, and in 1897, enameled steel conduit came into use. About the turn of the century, zinc coated rigid steel conduit was put into service. In 1928, a lighter weight conduit, called electrical metallic tubing, was introduced which likewise found immediate acceptance. Over 60,000 miles of this latter product was also made in 1953.

EMT Has Advantages

Electrical metallic tubing, fabricated from steel strip, has applications similar to rigid steel conduit and is used in all types of buildings. It is also recognized by the National Electrical Code for use in hazardous locations where it is not subjected to severe mechanical injury or to extreme corrosive conditions.

The principal advantages of electrical metallic tubing — commonly referred to as EMT — are its light weight and consequent easy handling and bending. Joints and connections are made with threadless fittings.

Monthly production of EMT is now at the rate of 34,000,000 feet. In terms of an average one-inch size, that output would require about 130,000 tons of steel strip annually.

Other steel raceway and accessory products account for about 200,000 tons more steel per year.[1]

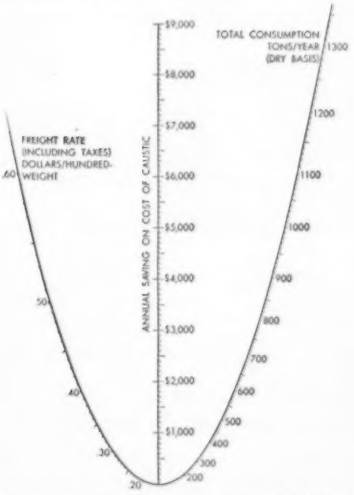
[1] *Steel Facts*—No. 128, October, 1954, 7.

BRIEFS
for caustic soda buyers

50% or 73%?
Choosing a supplier
New producing point

50% to 73%—
some save, some don't

To estimate quickly whether you can save by switching from 50% to 73% liquid caustic soda, simply draw a line on this nomograph.



Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment. (We'll be glad to advise you on cost of this equipment.)

If you still show a saving, it would be wise to consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size *Caustic Soda Buyer's Guide.*

And for specific technical advice centered on *your* requirements, just phone or write the nearest Hooker sales office.

Choosing a supplier

Service is a large part of what you pay for when you buy caustic soda.

Here are some important "service" points to look for when you're considering a source of supply. (As a Hooker customer, you enjoy *all* of them.)

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants and stock points on deep water may be able to offer you a choice of rail or water delivery. This can assure you steady supply in case of rail service interruption.

2. Realistic contracting. Your agreements with your supplier should realistically reflect your expected needs *and* the supplier's ability to consistently deliver the tonnage you need. Best yardstick for measuring this ability is a supplier's performance record. Hooker, for example, has an unbroken 50-year record of fulfilling contract commitments.

3. Engineering help. A supplier's engineering staff can help you set up a new caustic handling system—or revamp an old one—with advice, and with actual design assistance.

4. Safety programs. The men in your plant who handle caustic soda can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on the safe handling of caustic soda.

We'd be happy to enlarge on these points, with your caustic requirements in mind. A phone call or note to the nearest Hooker sales office will bring you the specifics.

New source

Put a pin just north of Vancouver, B.C., on your map of caustic soda supply points.

Here in the city of North Vancouver, early in 1957, a new $11 million chlor-alkali plant will go on stream. At the plant's masthead will fly the colors of Hooker Chemicals, Ltd. The plant will be built and operated by Canadians, for industry in Canada.

The new Hooker plant will be Western Canada's first domestic source of caustic soda and chlorine. It will shorten supply lines, provide small but real freight savings, eliminate the need to pay duties on caustic and chlorine, and make for faster service.

If your company is already operating plants in British Columbia, or plans to build in this great, growing territory, this is a good time to discover how Hooker Chemicals, Ltd., can serve you.

Check items you'd like to receive:

☐ *Caustic Soda Buyer's Guide.* Lists advantages of 50% and 73% solutions; comparative costs; capacities of tank cars and other containers; useful shipping information.

☐ Technical data on caustic soda.

Need information on these other Hooker products used in the pulp and paper industry? Check here for technical data sheets:

☐ Chlorine, liquid
☐ Muriatic Acid
☐ Sodium Sulfide
☐ Sodium Sulfhydrate

Clip and mail to us with your name, title, company address.

HOOKER CHEMICALS

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY
6 UNION STREET, NIAGARA FALLS, N. Y.
NIAGARA FALLS • TACOMA • MONTAGUE, MICH. • NEW YORK • CHICAGO • LOS ANGELES

6-166

Checking Your Speed

Record your total reading time in the table below, and estimate your rate with the use of the rate scale.

The article which you just read contains detailed facts so your speed in reading this article should be compared with your speed in reading the factual material in Practice Section II in the preceding chapter. Your rate of reading the selection just finished should show an increase over the score you made in reading this type of material in the last chapter, but of course you can't expect it to be as high as the scores you make in reading easy non-technical material.

Rate Table

Total Time	:
Reading Rate	:
Comprehension Score	:

Checking Your Comprehension

Write "Yes" or "No" before each statement according to whether it is true or false. If any part of a statement is incorrect then it must be marked "No."

—— 1—Rigid conduit is a steel tube which cannot be bent.

—— 2—The conduit is installed in buildings to provide passageways for the electric system.

—— 3—Some of the advantages enumerated for conduit installations are: it seals the electric system from water, chemicals and explosive gases; it minimizes the fire hazard; it is inexpensive.

—— 4—Rigid steel conduit is manufactured at the present time from special steel pipe.

—— 5—The process used in manufacturing conduit at the present time includes these steps: it is cleansed, threaded and chamfered; covered with zinc or enamel coating; and lined with paper.

—— 6—The need for electric conduit began 75 years ago with Edison's invention of the electric light.

—— 7—Early conduits were made from zinc, copper, brass, plastics, cement, or a combination of these materials.

—— 8—Installations or rigid steel conduit provide for flexibility of tenancy by permitting replacement of existing wires with larger ones.

—— 9—Electrical metallic tubing is made from an entirely different metal than rigid steel conduit.

——10—The principal advantages of electrical metallic tubing are its light weight and easy handling and bending.

Check your answers with the key below. Record your comprehension score on the table on page 6.

1—No	4—Yes	7—No
2—Yes	5—No	8—Yes
3—No	6—Yes	9—No
		10—Yes

Follow-Up Practice

Continue to practice during definite periods each evening. Devote increasing amounts of time at this stage to practice designed to increase your speed and comprehension in reading detailed factual material.

Try taking a pre-view of everything you read, both materials which you read informally as a part of your work or recreational activities, and those materials which you read during your regular practice periods.

Concisely, these are the characteristics which you will note in making your initial surveys before reading:

1—Title
2—Sub-headings
3—Visual aids
4—Pattern of writing
5—Length of paragraphs
6—Number of words (needed in making your time-of-reading estimate).

MINUTES	5½	5	4½	4	3½	3	2½	2	1½	1
WPM	136	150	166	187	214	250	300	375	500	750

NEWS OF ASSOCIATIONS

NPTA Meeting to Feature Sales Training Program

The National Paper Trade Assn. Annual Convention on April 9-11 in New York will have as one of its features an "Industry Conference" on sales training for distributors' salesmen. This will take place at the Wrapping Paper Division meeting on April 10, at the Waldorf-Astoria.

There will be a detailed discussion of this controversial subject by four specialists from within the industry, two of them manufacturers and two distributors. All four were selected because of their activity and interest in the matter and because each has had considerable practical experience from which to draw conclusions.

There will also be short talks by two men from outside the paper industry who represent the purchasing and consuming viewpoint. These men are identified with large scale buying of paper and paper products and it is hoped that they will keynote the conference and emphasize just what the final objective of any program for improving the performance of sales personnel should be.

The speakers will be:

Harold Corney, division purchasing agent, United States Rubber Co., New York; Theodore Dubin, vice-president, Daitch Crystal Dairies, New York; S. W. Franklin, Hudson Pulp and Paper Co., New York; Jerome Grover, National Paper & Twine Co., Cleveland, Ohio; G. E. McCorison, Thilmany Pulp & Paper Co., Kaukauna, Wis.; and Monte Wilkinson, Charles F. Hubbs Co., Div. Hubbs Corp., New York.

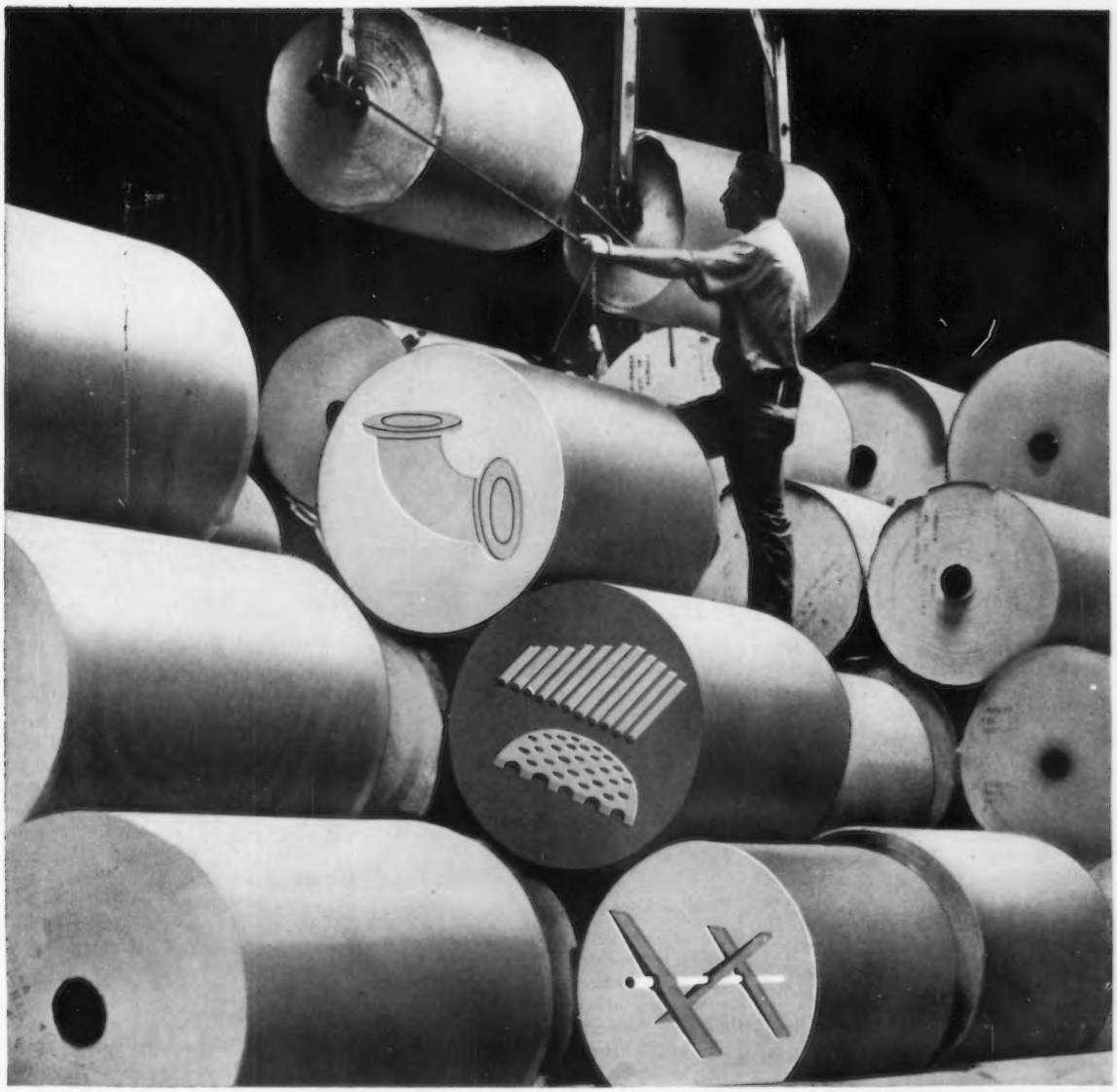
Folding Box Men Head for San Francisco

This year's annual meeting of the Folding Paper Box Assn. of America gets under way on March 11 in San Francisco. Business and social sessions will take-up four days, through March 14. All events are scheduled in either the Fairmont or Mark Hopkins Hotel.

MacAdam Heads N. E. Wood Utilization Council

At the recent meeting in Boston of the Northeastern Wood Utilization Council, William MacAdam was elected president. Mr. MacAdam is assistant treasurer and purchasing agent of Champion-International Co., Lawrence, Mass.

Other officers elected at the meeting are Vice-president Fred Simmons, Northeastern Forest Experiment Station, Upper Darby, Pa.; Treasurer Henry Hicock, Connecticut Agricultural Experiment Station New Haven, Conn.; Director Alexander Koroleff, Pulp & Paper Research Institute of Canada, Montreal; Executive Secretary A. B. Recknagel, P. O. Box 15, Ithaca, N. Y.



how STAINLESS *steel helps make better paper at lower cost...*

Slime control . . . continuous cleanliness . . . and low machine upkeep — these are the important functions of stainless in the paper mill.

Many vital parts of paper making machines *depend* upon the durability and freedom from corrosion that stainless steel delivers. For example, valves and fittings, stock lines, screens, regulator mechanisms, save-all trays, flow and head boxes are all profitably made of stainless steel.

And while long-range economy *suggests* stainless in any mill, the strict quality requirement of some types of paper making *demands* stainless equipment. For stainless eliminates the problem of contamination and discolored paper due to iron pickup.

Crucible will be glad to help you cut costs with stainless. For practical information on ways of doing it, write for your free copy of the 20-page booklet "Making the Most of Stainless Steels in the Pulp and Paper Industry." *Crucible Steel Company of America, Henry W. Oliver Building, Pittsburgh 22, Pa.*

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Synthetic-Fiber Papers Proved In Pilot Mill Runs

Highlights of the first progress report of production of Dacron, nylon, and Orlon papers. Basis for report is the experience of:

- **Riegel Paper Corp.**
- **St. Regis Paper**
- **Herty Foundation**
- **Rogers Corp.**
- **Kimberly-Clark**
- **Great Northern Paper Co.**

Synthetic-fiber paper has come from the laboratory to the pilot plant. Experience on four types of production equipment already has shown that commercial manufacture of papers made with "Dacron" polyester fiber, nylon, and "Orlon" acrylic fiber is practical. This progress in the year since Du Pont announced the experimental development of synthetic-fiber paper was reported at the TAPPI annual meeting last month.

The report was prepared by three members of Du Pont's Textile Fibers Department: John R. Emery, supervisor, and J. Donald Howell, technical representative, both of the Industrial Merchandising Division, and Dr. Seymour Sands, research chemist of the Industrial Products Research Laboratory. Mr. Emery, who presented the paper, pointed out that the unique physical and functional properties of papers prepared from nylon, "Dacron" and "Orlon," and blends of those fibers with wood pulp, should permit their use in many areas in which paper is not normally used.

Paper Properties

He cited tests which showed that by adding 25 per cent nylon to pulp bonded with polyamide binder, the tear strength of the paper was improved 3½ times and the fold endurance 42 times. In another case the tear strength of 100 per cent nylon paper was 14 times greater than cellulose paper bonded with the same resin, and the fold endurance was more than 75 times greater.

With proper binders, Mr. Emery said, it is possible to prepare papers reflecting the wide range of properties offered by the three fibers. Nylon has an outstanding combination of high strength, toughness, and resistance to alkalies. "Orlon" acrylic fiber has excellent outdoor durability and resistance to acids. "Dacron" polyester fiber has excellent dimensional stability, resistance to dry heat, high strength, high modulus of elasticity, and good dielectric properties. All three fibers also offer resistance to mold and rot, general chemical resistance, and low moisture absorption.

Possible Uses

Synthetic-fiber papers (actually nonwoven bonded structures made on papermaking machinery) can be made in a wide range of appearances and characteristics, from crisp paper-like structures to drapable fabric-like, tough parchment-like, or bulky felt-like structure.

Considerable product development already is under way by Du Pont, by paper manufacturers, and others. Uses which appear to offer the most promise include: paper-like structures for electrical insulation, high-pressure laminate reinforcement, map and chart paper, tracing paper and cloth; fabric-like structures for filtration, tarpaulins, coated fabrics, laundry press covers, electrical tapes; and felt-like structures for low-pressure laminate reinforcing batts, laundry press pads, filter felts. The home furnishings and apparel markets also offer potential uses, such as draperies, carpet backings, linings, interlinings, shoe fabrics, and special clothing applications.

JOHN EMERY attracts many questioners following his report.

Stock Preparation

The basic steps in preparing paper from synthetic fibers closely parallel those in preparing paper from cellulose—cutting the fiber, dispersing the fiber in water, forming a sheet, and bonding the fibers, Mr. Emery said.

Although the nature of the synthetic fibers has required development of special processing techniques, most of these are involved in preparation of the fiber by the fiber producer, he said, emphasizing that they have little or no effect on papermaker's processing techniques or equipment.

For example, no beating is necessary. Instead, the fiber is delivered to the papermaker already cut to specified short lengths similar to staple.

"To disperse these hydrophobic fibers in water, it was necessary to develop a special finish which is applied to the fibers in the manufacturing process."

"In addition, special techniques for overcoming the lack of wet web strength of these papers have been necessary. With 100 per cent synthetic fiber struc-

Pat. Pending

ROSS-HOOPER
Totally Enclosed
Machine Hood

HAILED AS THE GREATEST DEVELOPMENT IN 20 YEARS OF PAPER MAKING

In a little more than two years time, the ROSS-HOOPER Totally Enclosed Hood has practically revolutionized older methods for the production of paper. By completely enclosing the machine while maintaining easy access to it, the design and construction of this new hood has definitely achieved entirely new standards of machine operating speed and economy. In such important factors as drying uniformity, fresh air volume, amount of heat recovery, improved back pressure, moisture content, breaks and working conditions, new figures are replacing the old to reflect greatly increased efficiency. Our new Bulletin No. 26 gives full particulars. Write for a copy now.

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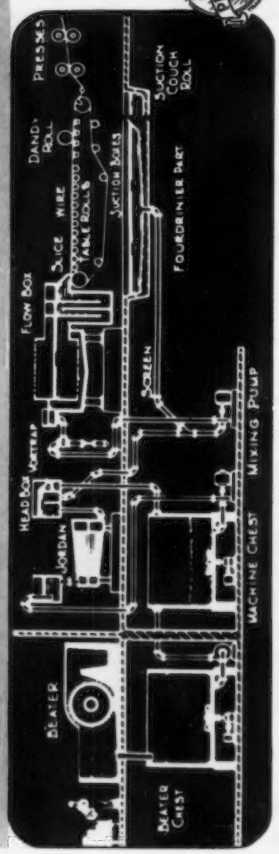
PERMAG FOR EFFICIENT PAPER MACHINE CLEANING



For every cleaning need there is a PERMAG CLEANING COMPOUND—production proven in extensive use for top efficiency, economy and reliability under all conditions. More than 30 years of development and service in superior cleaning compounds warrant your investigation of these widely approved PERMAG products.

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tures, the use of supporting felts and rolls or the application of resins to the wet sheet, permits handling of wet sheets of low strength. In blends, no modification is necessary for the cellulose imparts sufficient wet web strength to permit handling on commercial equipment."

Fiber Bonding Problems

Mr. Emery pointed out that because synthetic fibers do not generally fibrillate, the most important step in making papers from these fibers is effecting good bonding by other means. Two methods have been developed: solvent bonding and synthetic polymer bonding.

Synthetic polymers, in the form of resins or thermoplastic fibers, are proving to be more practical than solvents. They can be applied to the fibers in the sheet as dispersions, as solutions, or as fibers. "The importance of selecting the proper bonding agent and its concentration in the paper to attain optimum physical properties has been demonstrated," said Mr. Emery.

"For example, the optimum concentration of one type of dispersion-applied polyamide binder for maximum tear strength is 20 per cent. When the same binder is used in the form of thermoplastic fiber, maximum tear strength is achieved at a concentration of 10 per cent. At the same time, while tear strength is maximum at a 20 per cent concentration of dispersed polyamide binder, the tensile strength reaches a maximum at 30 per cent. It is, therefore, concluded that the desired properties of the final produce will direct the choice of binder, its form, and its concentration."

Mr. Emery pointed out that in some cases physical properties will be of secondary importance compared with chemical stability in a particular environment. This also will dictate selection of the binder.

Thermoplastic Bonding

Thermoplastic bonding, using fibers with lower melting points than the fibers to be bonded, has produced interesting and promising results, Mr. Emery reported. With this method, the binder fibers are blended with the base fibers in the slurry before sheet formation. Bonding is accomplished by hot pressing of the sheet at the end of the dryer section of the papermaking machine.

Most of the work to date on themoplastic fiber-bonded papers has been done with "Dacron" polyester fiber and binders of experimental polyester fibers which have melting points 80 to 150 degrees Fahrenheit below that of conventional "Dacron" (480 degrees Fahrenheit).

Experiments have shown that the tensile strength and elongation of this paper increase with the content of the thermoplastic fiber, reaching a maximum at about 40 per cent. Burst strength increases to a maximum at 30 per cent content, while tear strength is inversely proportional to the thermoplastic fiber content.

This shows again, Mr. Emery pointed out, that the properties of papers made from synthetic fibers are dependent on the nature of the binder and its content in the papers.

Fiber length is another variable which has been found to be important. Experiments have shown that the short fibers make a better slurry, while long fibers improve the physical properties of the finished sheet. Fiber length of about one-quarter inch appears to give the best balance between paper properties and ease of handling. Again, however, this is the responsibility of the fiber producer and should require little or no modification of equipment or process on the part of the papermaker.

Conclusion

Mr. Emery said the pilot plant studies, in which Du Pont co-operated with the six paper manufacturers, resulted in these conclusions:

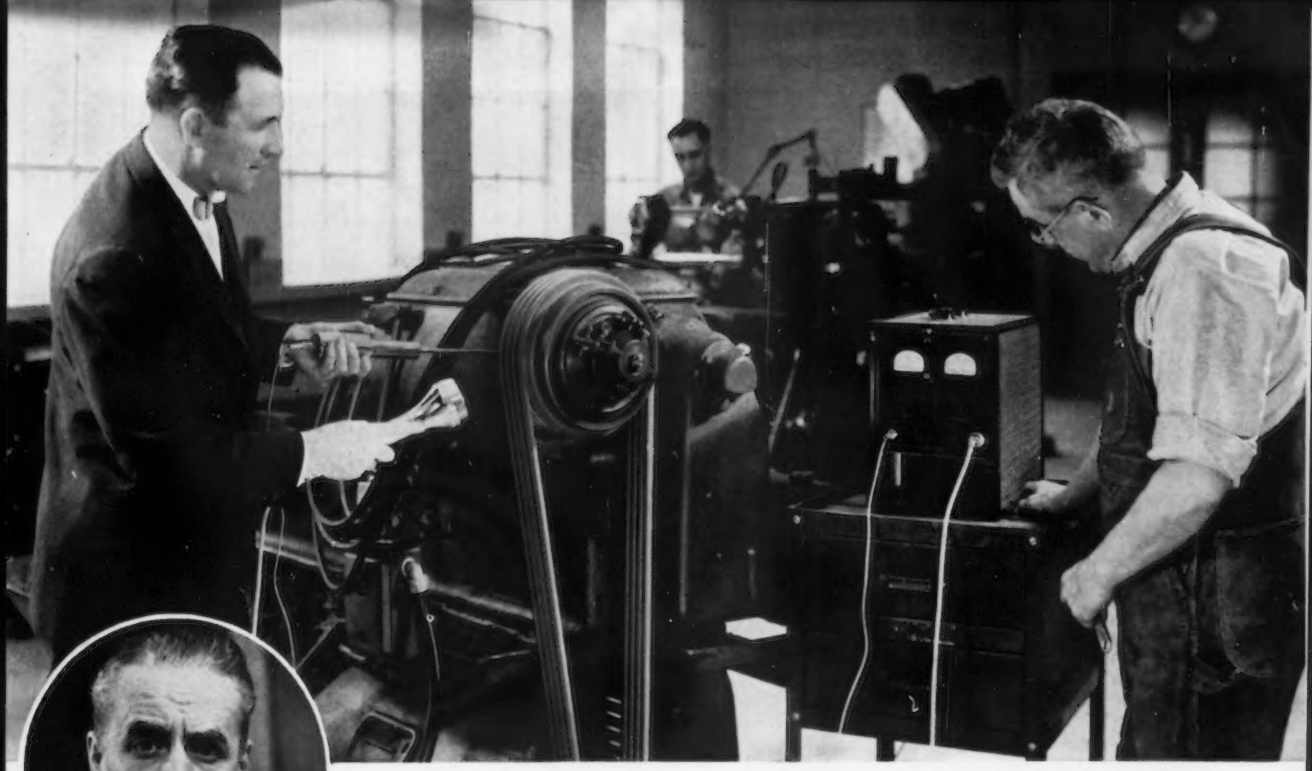
Mechanical cutting of the fibers to proper length eliminates the beating operation, which should result in substantial savings in time, power, and equipment for the manufacturer.

The wet strength of 100 per cent synthetic fiber sheets is low compared with wood pulp. Several techniques have been found to overcome this problem. These are 1) addition of resins to the finish, 2) addition of wood pulp, and 3) elimination of the gap between the couch roll and the dryer felt by use of a pick-up felt.

Experimental runs of 100 per cent synthetic fibers have been made on regular fourdrinier machines, three-wire type fourdrinier machines "Rotoformers," and cylinder machines. The cylinder machines were the most difficult to operate because of the extreme freeness of the fibers.

Because the strength of 100 per cent synthetic-fiber sheet is not sufficient to carry it through the dryer section of the papermarking machine, it is necessary to apply some binder to the wet web. This can be accomplished with a size press, spray, or "Novak" impregnating unit. All of these techniques require the sheet to be fully supported by a felt.

The impregnated sheet is dried in a conventional manner. As the water evaporates, the binder tends to concentrate at the crossover points of the fibers. This provides sufficient strength to carry the sheet through the dryers. The bonding process is completed by heat and pressure in calender or press.



"You say I can see vibration, measure it, and eliminate it?"

1 "How much vibration do you think my machine has?"

No need to guess—the Veelos Vibration Analyzer shows exactly! This amazing electronic tester measures vibration amplitude down to *2-millionths of an inch*—tests one belt against another, actually shows which belt has "invisible shakes" . . . and how much! Don't guess about vibration; it's costing you hard cash every minute you ignore it. Ask your Veelos salesman to test your belts with the Vibration Analyzer.

2 "Isn't vibration caused by a number of things?"

Vibration can be caused by bearings, motor, clutch, sheaves or V-belts. Quite often it is caused by V-belts alone. The Veelos Vibration Analyzer uses a "strobe" light which "stops" the motion—shows exactly *what* is vibrating! It shows you precisely how much vibration you're paying for, and lets you correct it. The Vibration Analyzer gives positive proof, and the test takes only 15 minutes. It's free, of course.

3 "How do I eliminate costly belt vibration?"

Install Veelos, in place of ordinary V-belts! V-belts have spots of varying density, due to their construction, which throw them out of balance. Veelos belts are absolutely uniform; every stud and link is identical; *every foot of the reel* is identical and uniform; and they're perfectly balanced! Test any belt for vibration against Veelos—you're in for a shock. Your Veelos salesman will show you how to cut costs and improve your operation.

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THE BALANCED
LINK V-BELT

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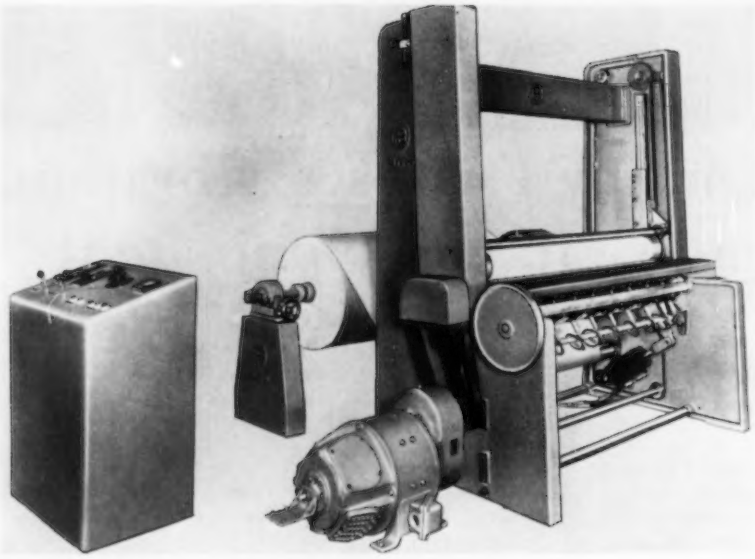
"Industrial Belt Specialists Since 1911"

Adjustable to any length • Adaptable to any drive • Balanced power • Constant power • Vibrationless power

The DRAPER Felt
DRAPER BROTHERS COMPANY
CANTON, MASS.

NEW EQUIPMENT AND SUPPLIES



New Slitter-Rewinder Line Added

A new line of slitter-rewinders for converting operations is being offered by Dilts Division of The Black-Clawson Co., Fulton, New York.

A two-drum winder with riding roll, the TD-4 is made up in widths of 42", 52" and 62" with speeds up to 1000 FPM. It is equipped with 4" diameter drums, has a rewind capacity of 30 in., and can be furnished for score or shear type slitting. It features enclosed framing, heavy wall rolls and long life antifriction bearings.

Improved designs feature a riding roll over-drive which ensures tight starts, controlled pneumatic engagement of slitters, ball bearings mounted, positive axial locking of core winding shaft, and extensive use of standard readily available commercial items.

All controls are located at the front of the machine for ease of operation. Winding roll pressure is positive and control simple. All enclosed drive belts and air brakes on the winder drums are enclosed for maximum safety.

Three other models of this type are available for rolls up to 72" in diameter and widths to 130".

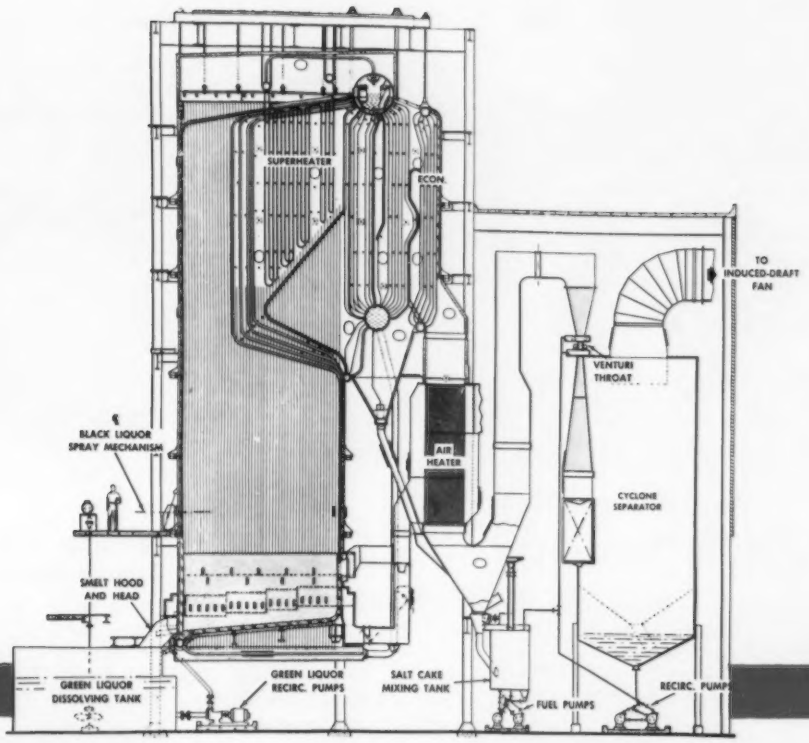
Industrial Mixer Has Unique Impeller Action

A new centrifugal mixer, which provides counter-flow mixing action, is now offered by Neumann & Weaver, Inc., U.S. distributor at 22-12 Raphael St., Fairlawn, N.J. The product is manufactured by the Rheinhutte Co., in Wiesbaden, Germany.

Called Model RKM, the mixer product has good suction in that it picks up heavy liquids at the bottom of the tank and circulates them throughout the mixture; it provide s a turbulence area throughout the tank, not one just limted locally; it draws light liquids from the top at the same time as heavier particles are taken from the bottom for a more complete mix; it eliminates the need for a foot bearing in the container propet; and provides direct coupling for more lasting service.

The mixing impeller is closed, with walls on both sides of the impeller. The fluid is first taken up axially and leaves the impeller radially through channels. The peculiar shaped impeller with double vanes creates two mixing processes.

Channeling within limited zones is not possible at the same speeds, as the impeler channels are different as to shape, size, and contour of passages. Even the main axis of the impeller is varied, but



Venturi Evaporator-Scrubber

(Contact Liquor Evaporator) (Fume Collector)

Installed with B&W Recovery Unit means Improved Economy

The Babcock & Wilcox Company black-liquor recovery system illustrated above has completed almost three years of continuous trouble-free operation.

An outstanding feature of this installation is the B&W Venturi Evaporator-Scrubber, which combines in one piece of equipment both the concentration of black-liquor and collection of salt cake fume. The three-year operating period has proved the Venturi Evaporator-Scrubber to be completely reliable and highly efficient.

Five recovery units equipped with Venturi Evaporator-Scrubber are now in service. Five additional units ranging in capacity from 30 to 360 pulp tons are currently on order.

The Venturi Evaporator-Scrubber is an important addition to B&W's equipment for black-liquor recovery. B&W can select exactly the right combination for your mill. The Babcock & Wilcox Co., Boiler Div., 161 East 42nd Street, N. Y. C.

Advantages of the B&W Venturi Evaporator-Scrubber unit include:

- **Simplified Operation**
- **Low First Cost**
- **Increases overall Thermal Efficiency**
- **Efficient use of operating force**
- **Reduces Maintenance Requirements**
- **Continuous, High, Fume Collection Efficiency**
- **Minimum space requirement**
- **Reduces multiple effect evaporator load**

BABCOCK & WILCOX

BOILER DIVISION

P-787-B

arranged in proportion. In such a way a threefold mixture is obtained as the fluid pulsates, so to speak, against the mixer shaft and there is no simple rotation around the shaft.

The mixer features a double bearing system with a lower long bearing close to the mixing impeller. This plain bearing close above the impeller is reliable and gives the utmost satisfaction in every way. Lubrication can be from the fluid in the container, or with water, or with grease. The method of lubrication must be determined for each mixture, depending upon the analysis of the fluids. Additional guide bearings can be installed around the shaft, if submersion requires a length greater than six feet. The shaft tube is connected to a solid supporting flange plate, for dependable service.

Remodeled Fire Nozzle Is More Efficient

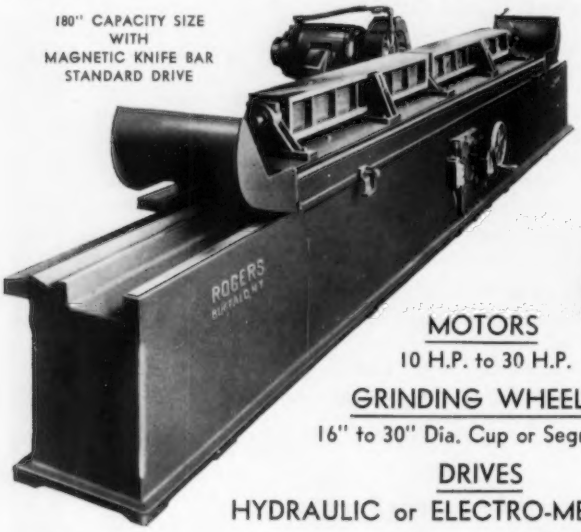
A new spray nozzle for protection of transformers has just been announced by Bete Fog Nozzle, Inc., Greenfield, Mass. With the newly designed head, the need for a large number of units for machine fire control is eliminated. With only four Bete T-1 nozzles on each transformer, the manufacturer states, it is possible to isolate or extinguish a fire before it spreads to other equipment. In addition to lowering the number of units needed, savings on installation are also effected.

Nozzles deliver approximately 80 g.p.m. at 25 p.s.i. with a driving 80 degree full-cone spray pattern which is suitable for outside work under all weather conditions. Made of cast bronze with large and non-clogging passages, the product is supplied in 2 inch female pipe thread.

Portable Lift Features Compactness, Versatility

Southworth Machine Co., Portland, Maine anounces the development of a low cost lift table which is designed to keep materials at easy working heights. Because it is portable, the lift unit can be used with sheet feeding machines, presses, die presses, gluers, varnishers, for sorting and inspecting. It is small enough to easily fit between the legs of

180" CAPACITY SIZE WITH MAGNETIC KNIFE BAR STANDARD DRIVE



ROGERS

SERIES 220

HEAVY DUTY KNIFE GRINDERS

200" CAPACITY SIZE WITH MECHANICAL KNIFE BAR HYDRAULIC DRIVE

MOTORS
10 H.P. to 30 H.P.

GRINDING WHEELS
16" to 30" Dia. Cup or Segmental

DRIVES
HYDRAULIC or ELECTRO-MECHANICAL

Engineered and designed by experts to meet the most exacting knife grinding requirements, the Rogers Series 220 Grinders are the acknowledged leaders where traveling table type grinders are used for chipper knives, doctor blades, veneer knives, paper knives, shears, and other straight edged knives.

WRITE FOR INFORMATION

SINCE 1887

SAMUEL C. ROGERS & CO., INC.

2070 SHERIDAN DRIVE
BUFFALO 23, N. Y.

any standard skid and yet lift 4000 lbs. to a height of 38 in.

An electrical control system enables the operator to raise or lower the table simply by touching a conveniently located hand or foot switch. When completely collapsed, the unit is only 7½ inches tall.

The product is also available in a stationary model and because it is only 7½ in. high in its collapsed position, it can be recessed into almost any wood, concrete or composite floor.

Filter Pump Addition Offers Greater Capacity

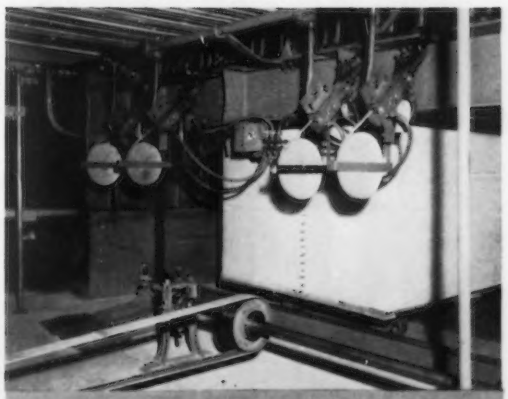
A new self priming filter pump addition to its present LSIN line of pumps for corrosive solution handling is announced by Sethco Manufacturing Co., 70-78 Willoughby St., Bklyn 1, N. Y. The new unit, which is called Model 20, is rated at 200-300 g.p.h. filtering capacity. The assembly design differs from previous assemblies of smaller size in that the new unit provides for separate sealing of both the filter tube and the filter shell.

Removal of particles from 150 to 1 micron can be controlled by varying the density of the filter tube in the assembly. The choice of filter tubes to be used in the assembly depends on the solution to be filtered. A variety of materials, such as cotton, Dynel, porous stone, and porous carbon, are available.

The self priming product is fabricated of stainless steel with a neoprene impeller and a high temperature lucite filter assembly, which in turn is mounted on a linen impregnated phenolic panel and coupled to a totally enclosed ¼ h.p. motor. Portable models can be supplied on order.

already 79%

of the mills that bought
STEVENS COUNTERS
HAVE COME BACK FOR MORE



Four Stevens Markers mounted underneath this cutter automatically inject count slips into each of the four piles on the layboy.

Automatic Counter

They come back because Stevens Counters and Pile Markers save them money by giving an accurate count as each ream is cut—completely eliminating a time consuming manual operation. They come back, too, because Stevens equipment stands up under constant use, and can be installed on any cutter in operation.

See how Stevens Counters and Pile Markers can save money for you, too. Write for Bulletin No. 100 or ask for a free demonstration in your mill.

stevens

CHARLES R. STEVENS, INC.
2017, SYLVANIA AVE. • TOLEDO 13, OHIO

NEWS OF SUPPLIERS

W. H. Mouquin

C. C. Bray

• DE LAVAL STEAM TURBINE CO., Trenton, N.J., has named W. H. Mouquin district manager of the new Chicago Sales and Service Headquarters in Forest Park, Ill., and C. C. Bray has been appointed regional sales supervisor at the same office.

• BLACK-CLAWSON (CANADA) LTD. has elected J. D. Haskell to president of the recently formed Black-Clawson Canadian manufacturing subsidiary, Montreal, Canada, which continues under the general managership of E. M. Root. Black-Clawson (Canada) directs all sales, engineering, manufacturing and co-ordination of activities between Canadian subsidiary and the American and British division of The Black-Clawson Co.

J. D. Haskell

Mr. Haskell also is a vice-president of the parent Black-Clawson Co. and a Director of Black-Clawson International Ltd. in London.

C. W. Page

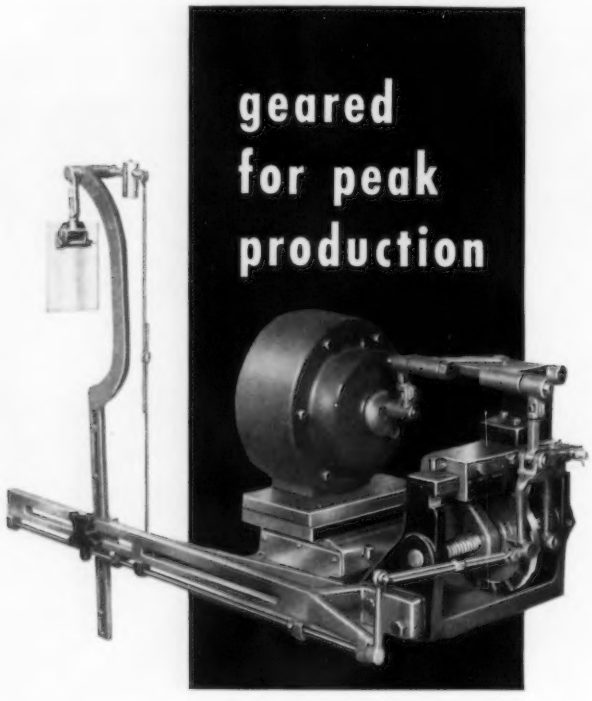
R. D. Gregory

• ALBANY FELT CO., Albany, N.Y., has assigned Charles W. Page to a new sales territory covering the states of Washington and Oregon, and Robert D. Gregory, Jr. to an area covering parts of Indiana, Ohio and Western New York. Mr. Page has represented the Albany firm as a sales engineer since 1948, working in the mid-western states until this reassignment. Mr. Gregory recently completed a two-year training course in the company's plants and in the field.

G. B. Leighninger

• STEIN, HALL & CO. has appointed George B. Leighninger as manager of its Los Angeles branch office.

Mr. Leighninger, who since 1954 served as assistant manager of the firms Chicago branch, joined Stein Hall in 1948 as a sales trainee.



This Gilbert and Nash Model 434 guide is geared for today's high-speed production requirements. A sealed planetary reduction gear and anti-friction bearings *assure* trouble-free operation at machine speeds *up to 3000 f.p.m.!*

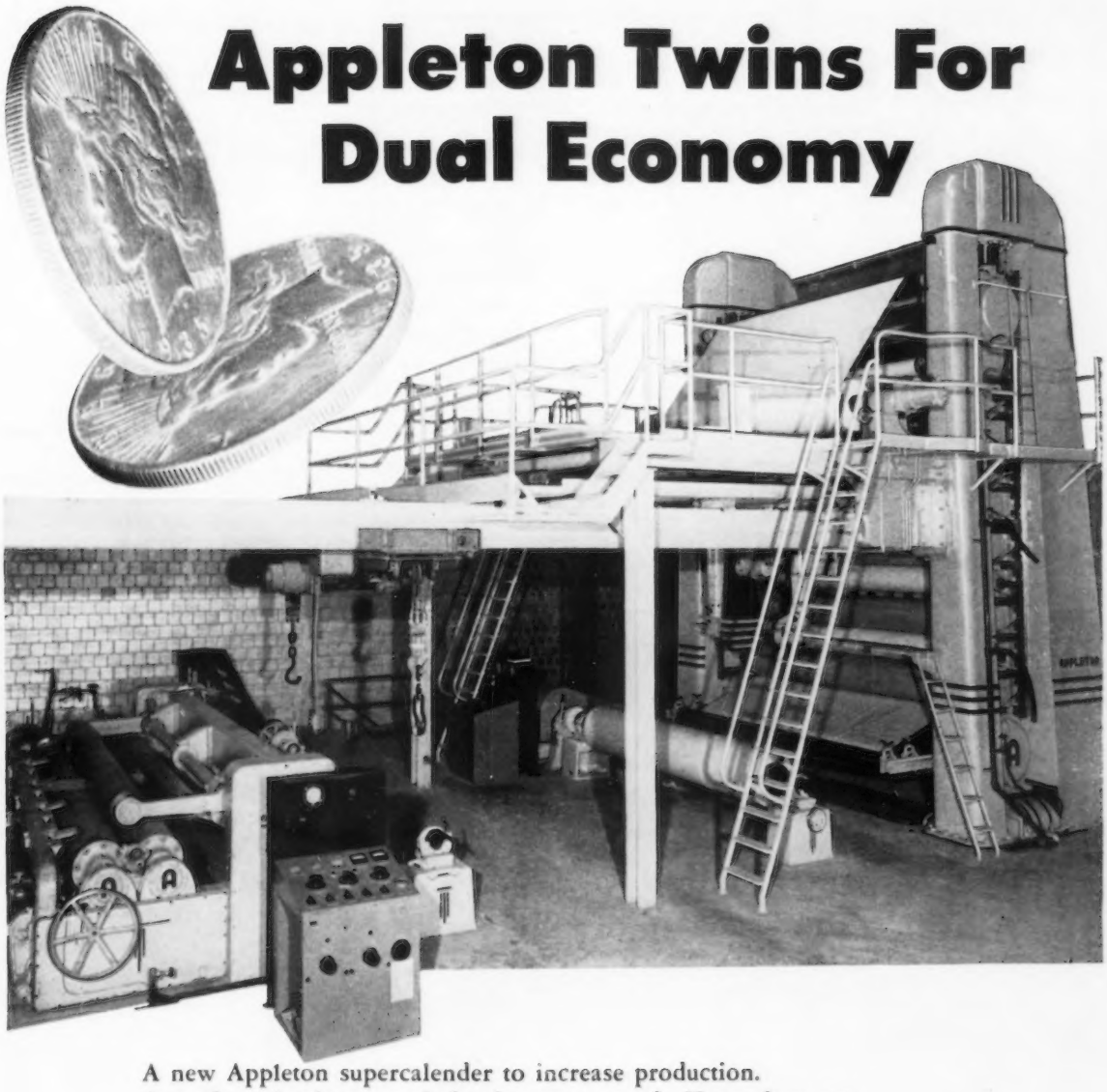
This low-contour guide is recommended for wire, wet felt and dryer felt service.

And like all Gilbert and Nash guides . . . Model 434 is *engineered for the job!*

GILBERT and NASH company

*Manufactured and sold exclusively by The Appleton Machine Company

Appleton Twins For Dual Economy



A new Appleton supercalender to increase production. A modern Appleton rewinder for more speed. Team them up for *twice* the efficiency to cope with today's higher costs.

Appleton supercalender illustrated: 150″ 12 roll, has shaftless unwind arrangement and automatic roll handling from elevated storage platform. Operates at 1800 f.p.m.

Appleton rewinder illustrated: 150″ 2 drum, also ruggedly built, with low center of gravity to assure vibration-free operation. Operates at 3500 f.p.m.

APPLETON MACHINE COMPANY
APPLETON WISCONSIN

CUSTOM-BUILDERS OF PULP, PAPER & TEXTILE MACHINERY · CALENDERS · FINISHING ROLLS · REWINDERS · SCREENS · DECKERS

Figures of the Week

PAPER PRODUCTION RATIO REPORT —American Paper & Pulp Ass'n. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Jan. 21	Jan. 28	Feb. 4	Feb. 11	Feb. 18
1956	100.3	99.4	101.4	101.1r	101.3
1955	Jan. 22	Jan. 29	Feb. 5	Feb. 12	Feb. 19
	95.3	94.9	96.1	97.1	95.5

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	93.6	96.6	97.9	98.0	99.3	97.4	85.5	96.2	93.8	101.2	100.6	91.3‡	94.9
1956	98.9‡												

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1949	1950	1951	1952	1953	1954	1955	1956
Year to Date	89.5	93.9	100.0	97.8	95.2	94.3	93.9	101.7
Year Average	83.7	95.8	98.0	88.6	92.3	91.6	94.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS†

	Jan. 21	Jan. 28	Feb. 4	Feb. 11	Feb. 18
1956	101	102	101	100	99
1955	Jan. 22	Jan. 29	Feb. 5	Feb. 12	Feb. 19
	93	94	94	95	95

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	92	95	96	94	97	97	84	99	97	102	101	92	96
1956	100												

***Note:** In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.*

† Percents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Ass'n. Figures

ITEM	THIS WEEK ENDING Feb. 18, 1956	LAST WEEK ENDING Feb. 11, 1956	CUMULATIVE TO DATE Jan. 1, 1956 to Feb. 18, 1956
% Activity	99%	100%	100%
	Tons	*Tons*	*Tons*
Total Production	291,777	283,585	1,937,741
Liner	100,665	96,842	670,141
Corrugating Material	46,829	44,093	310,831
Chip & Filler Board	5,710	7,523	38,106
Total Containerboard	153,204	148,458	1,019,078
Folding	49,409	50,303	344,998
Set-Up	14,236	14,172	92,115
Special Food Board	24,934	21,957	153,367
Other	49,994	48,695	328,183
Total Boxboard	138,573	135,127	918,663
Total Orders	*Tons*	*Tons*	
Received	226,447	264,870	
Unfilled End of Week	545,180	613,937	

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Consulting and Designing Paper Mills Engineers

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Associated with

William H. Byrne P. E.

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Associated Companies

Stevens & Wood, Inc. **Byrne Associates, Inc.**

PAPER MILL DESIGN PROCESS ENGINEERING POWER PLANTS

STRUCTURAL AND ARCHITECTURAL DESIGN

ELECTRICAL SYSTEMS PIPING LAYOUTS AUXILIARY SERVICES

REPORTS APRAISALS ESTIMATES AND SURVEYS

• GENERAL ELECTRIC CO. reports the retirement of Frank E. Winslow, who for 25 years was paper mill specialist in the Philadelphia office of General Electric. He is a member of APPMSA and TAPPI, and prior to his service with the Philadelphia office had been manager for 10 years of G. E.'s Baltimore office.

• YALE & TOWNE MFG. CO. has named Carl O. Hedner assistant general sales manager of the company's Materials Handling Division.

He joined the Yale sales organization in 1923. In 1928 he became assistant to the manager of hoisting equipment sales and three years later was promoted to the managership of the department when the Yale Materials Handling Division was moved to Philadelphia.

L. W. Goldenson, a veteran of more than ten years experience in sales, service and engineering of materials handling equipment, has been named manager of the San Francisco Sales and Service Branch.

Mr. Goldenson replaces Harold N. Stiles who has been named acting electric truck sales manager for Yale with headquarters in Philadelphia.

J. Russell Manning, formerly Cincinnati branch manager, has been named manager of the Sales and Service Branch serving the Detroit and Lower Michigan Peninsula, industrial areas.

Mr. Manning joined the Yale sales organization in 1946, holding various internal executive posts before being named manager of the Cincinnati Branch in 1952.

OBITUARIES

Harold Crabtree, 71, until recently chairman of the board of the Howard Smith Co., Ltd., died February 18 in Royal Victoria Hospital, Montreal, Que.

During World War II Mr. Crabtree was president of the Allied War Supplies Corp. He was a director of many companies, including the Royal Bank of Canada, the Montreal Trust Co., the Sun Life Co., Dominion Tar and Chemical, Woods Manufacturing and the Fraser Co., Ltd.

Mr. Crabtree also was a past president of the Canadian Mfrs. Assn., the Canadian Pulp and Paper Assn. and the Canadian Chamber of Commerce.

Phillip P. Milburn, Sr., 44, superintendent of the Green Bay Box Co., Green Bay, Wis., was killed in an automobile accident February 24.

Donald G. Lehman, 60, materials standard engineer for the Kimberly-Clark Corp., died at Appleton, Wis., February 20.

Here is must reading for profit-minded paper mills

Your quality—and profit—will start here with this new improved Manchester Suction Main Press.

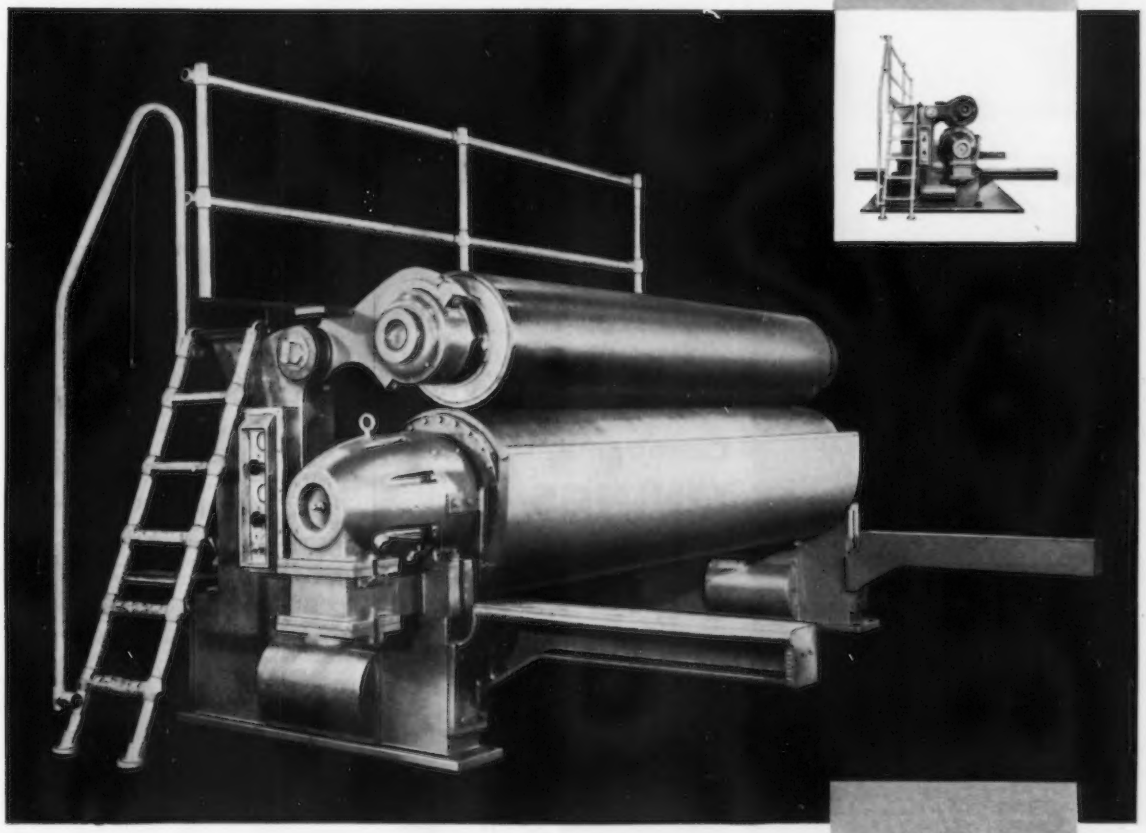
Take a close look at the picture. Note the simple, compact, rugged design of this press. With it, you get more complete water removal, better moisture control, less broke, a higher drying rate, cleaner felts, and longer felt life. The end-result is a more uniform top-quality sheet, steady profit, and a strong competitive position.

The Manchester Main Suction Press is engineered as a complete unit, ready to place in your present machine without costly changes or lengthy shutdown.

Get all the facts. Write us today.

OTHER PRODUCTS:

- Primary Presses
- Size Presses
- Pope Type Reels
- Paper Machine Drives
- Rubber-Covered Drilled Suction Press Rolls
- Drilled Suction Drum Rolls
- Drilled Suction Couch Rolls
- Cylinder Molds
- Smoothing Presses
- Winders and Slitters
- Complete Fourdriniers



Manchester Suction Press

The Manchester Machine Co., Middletown, Ohio

SPECIALISTS IN DESIGNING AND BUILDING PAPER MILL MACHINERY

Earl Eaton Shaw, 62, chief forester of the Canadian International Paper Co. until his recent retirement, died February 23 in Montreal after a brief illness.

George Fox Corse, 62, of Swarthmore, Pa., Philadelphia representative for Mead Paper, Inc., died Feb. 23 in Taylor Hospital, Ridley Park, Pa.

G. Alfred Knoche, 81, former president of Coy, Hunt and Co., New York paper brokerage firm, died February 15 at Clearwater, Fla.

Claude Houser, night superintendent for the Upson Paper Co. at Lockport, N.Y., died on February 12.

Reynolds B. Hannah, 66, died February 13 at Middletown (Ohio) Hospital.

Mr. Hannah was employed as a beater foreman at the Sorg Paper Co. from 1929 until October 1955, when he retired.

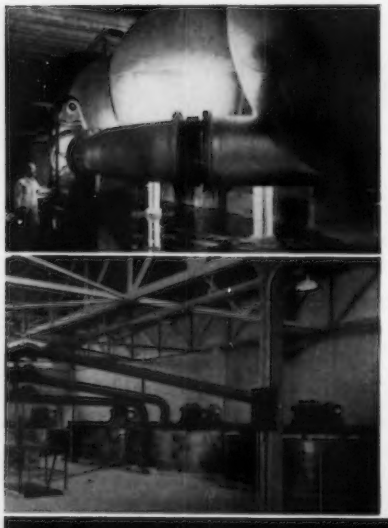
The holder of the Purple Heart and Silver Star awards, he was a veteran of World War I. He served overseas with the 28th Infantry.

John P. Eckles, 62, purchasing agent for National Vulcanized Fibre Co., Yorklyn, Pa., died suddenly on February

(Continued on page 52)

Stebbins research laboratory and engineering offices. Watertown, New York.

RESEARCH and ENGINEERING have made Stebbins the World Leader



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The experience of practically all companies in the pulp and paper industry proves that it will pay you to put your corrosion-resistance problems in the hands of Stebbins specialists. Complete service, from original design to year-round maintenance. Get the facts. Write for Bulletin A-153.

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SINCE 1884

Specialists in Design, Installation and Servicing of Linings and Tile Tanks

PRICES OF MATERIALS

Aluminum sulphate:
- cml. bags, c.l. wks. .....cwt. $1.85 / —
- iron-free, c.l. wks. .....cwt. 3.55 / —

Casein, acid prec.:
- dom. sh. pt. c.l. (30 mesh)... 32.00 /34.00
- Arg. ex. dock, duty paid..... 28.00 /29.0(
- New Zeal., do. ..... 34.00 /35.0

Caustic soda:
- c.l. wks. solid, 76%.....cwt. 4.20 / –
- dak. & grd. 400-lb. drums, c.l. 4.50 / –
- liquid 50% tanks.... 2.80 / —
- liquid 70% tanks.... 2.90 / —

China clay:
- dom. air-float, c.l. wks. ..ton 10.00
- water washed, lump, filler..ton 11.00
- coating .....ton 17.60 /40.0
- Imported, ex. ship. short tons 20.00 /35.0

Chlorine:
- single-unit tanks, works..cwt. 3.05 / –
- multiple unit, 2-5 cars per yr. 3.92 / 5.1½

Formaldehyde:
- USP, inh. dms. c.l. wks..lbs. .0675/ —
- lcl., E. wks. .....lb. .072 /.0725

Lime:
- hydrated bags, wks.....tons 18.71 /20.21

Gum rosin:
- K, M, N, drms, c.l. Savan, cwt. 8.45 / 8.88

Rosin size:
- 70%, gum & pale grds., tank cars, south, sh. pt..... cwt. 7.24 / 7.28

Salt cake:
- dom. bulk, 100% anh. wks. ton 28.00 / —
- imp. f.o.b. Saskatchewan..ton 18.00 / {Cana. fund-

Soda ash:
- light, 58%, bags, wks.....cwt. 1.75 / 1.80
- bulk .....cwt. 1.45 / 1.50

Sodium silicate, 40° Be.:
- tank-cars, wks.....cwt. 1.00 / —
- drums, c.l. wks.....cwt. 1.35 / —

(47°) Be. WW
- tank-cars, wks.....cwt. 1.60 / —
- drums, c.l. wks.....cwt. 1.95 / —

Sodium peroxide:
- dms. c.l. E. of Miss. .....lb. .186
- l.c.l. do. .....lb. .191 / .196

Soybean, protein:
- chem. isol., wks. c.l. bags...lb. .23 / —

Sulphuric acid:
- 60° Be. chys. c.l. wks....cwt. 2.00 / —
- l.c.l. wks.....cwt. 2.45 / —
- tank-cars, wks.....ton 18.60 / —

Sulphur:
- crude, c.l. mines, contract, long ton 26.50 / —
- f.o.b. vessels Gulf.. .....do. 31.00 /33.00

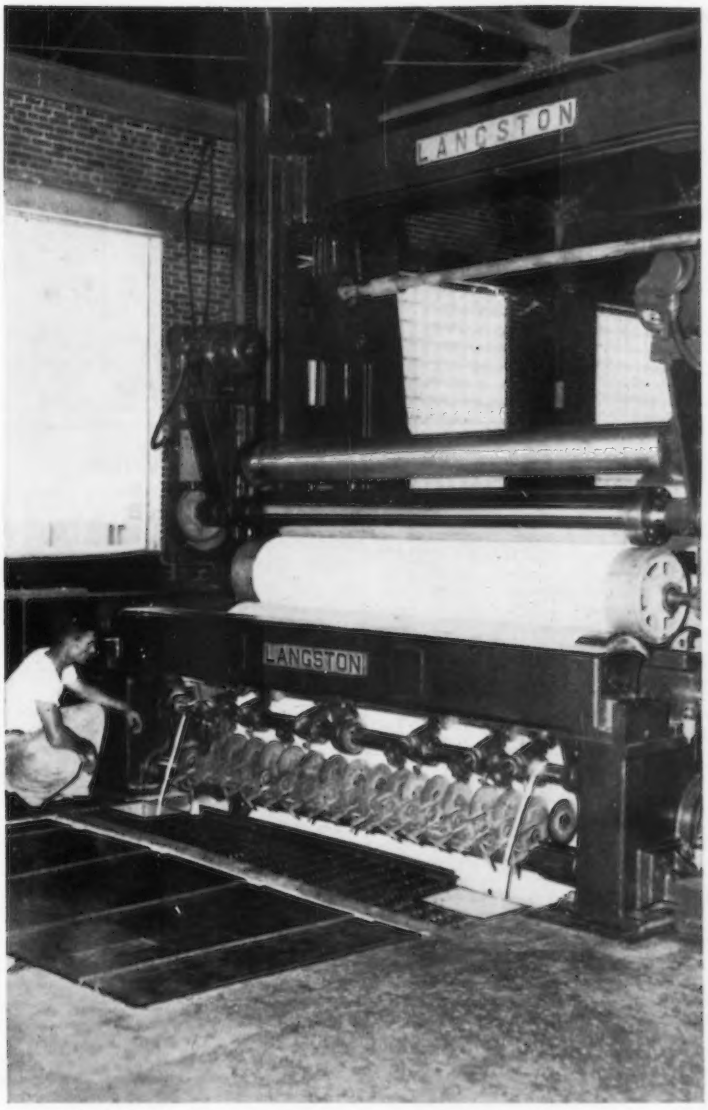
Sulphur dioxide:
- liquid, coml. cyl., wks.....lb. .10 / .12
- multi-unit cars .....lb. .0535/

Starches:
- corn, multiwalls, c.l. prod. plant:
- pearl .....cwt. 6.39 / —
- white, dextrins .....cwt. 7.55 / 7.80
- chlorinated .....cwt. 8.15 / —
- potato, Idaho, c.l. wks....cwt. 6.00 / —
- East, fr. all. 50 cents cwt.
- potato, Maine f.o.b. wks. cwt. 5.75 / —

Talc:
- domestic, sacks,
- c.l. wks., N.Y. .....ton 27.00 /32.00

Titanium dioxide:
- anatase, c.l. deld. E. bags..lb. .22½/ —
- l.c.l. deld .....lb. .23½/ —
- rutile, c.l. deld. .....lb. .24½/ —
- l.c.l. deld. .....lb. .25½/ —

Langston Slitter & Winder makes 26 perfect cuts per roll



STARTING A ROLL. St. Regis operates this new machine at about 1000 feet per minute. During its first year's operation, the machine will slit and wind roughly *15,000 miles of board.*

LANGSTON SHEAR-CUT SLITTERS keep dust to a minimum. This means cleaner rolls; a cleaner plant; more accurate slitting; and square edges.

Performance report on new machine at St. Regis

"This new Langston winder makes money for us through better rolls and less waste." This remark was recently made by A. F. Downey, plant superintendent at the Pensacola, Fla., paper mill of St. Regis Paper Co. He was referring to the new Langston Slitter & Winder.

The machine's task is to slit heavy board used in the manufacture of milk cartons, butter cartons, paper cups, etc. Before installation of the machine, St. Regis had a major problem with checking and wrinkling—both of which created waste. Today they turn out as many as 26 cuts per roll—all perfect. "I think we could make 30 just as easily," said Mr. Downey.

The new Langston machine is a Model DH with 18-in.-dia. drums and idler rolls and other features specially built in to aid handling of the heavy board. Rolls slit and wound are 92 in. wide and of up to 72-in. dia. Operators praise the machine because it is so easy to operate.

Langston Slitters & Winders are available in several standard types, each adaptable to special applications. Sizes range from 40 to 196 in. and in speeds to meet your specifications. Write for complete details. SAMUEL M. LANGSTON CO., Camden 4, N.J.

LANGSTON *Leadership...by design*

18 at his home in Yorklyn. He had been associated with National Vulcanized Fibre for 44 years.

Elwell R. Butterworth, 82, retired vice-president and director of Middlesex Products Corp., Cambridge, Mass., died January 29. He had been actively associated with the coated paper converting firm for 54 years. He was a member of the class of 1898 of M.I.T.

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depending on size of pump and accessory equipment required.
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PRICES OF FIBERS

MARKET WOOD PULP

First Quarter Contract Prices Per Short Air-Dry Ton

	Delivered Basis		Varying Freight Allowances†		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	§$83.00/ 86.00§	§$83.00/ 88.00§	§$77.50/ 90.00
Kraft, Blchd.	147.00/152.00	150.00/155.00	§147.50/150.00§		$150.00/ —
Kraft, Blchd. Hdwd.	145.00/ —		§137.50/ —		
Kraft, Semi-bleached	135.00/140.00	135.00/140.00	§137.50/140.00§	*140.00/ —	
Kraft, Unbl.	115.50/125.00*	115.00/125.00	†120.00/130.00	120.00/145.00	
Sulphite, Blchd. ..	145.00/150.00	150.00/ —	*150.00/ —	*150.00/ —	145.00/147.50†
Sulphite, Unblchd. .	125.00/ —	130.00/ —	†130.50/ —	*130.00/ —	
Sulphite, Unb'l. Gl'an.		129.00/ —	†129.00/ —		
Soda, Blchd.	142.50/145.00	145.00/ —			

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

NEW YORK RAG MARKET

New Domestic Cotton Cuttings
Delivered Mill Basis
PRICES NOMINAL

	Per 100 lbs.
No. 1 White Shirts	$15.25/$15.50
No. 1 Unblchd. Muslins	17.00/ 17.50
Blchd. & Unblchd. Underwears....	17.00/ 18.00
No. 1 Light Silesias	7.25/ 7.75
No. 1 Light Blue Overalls	9.00/ 9.50
Percales	7.00/ 7.50
No. 1 Light Prints	5.75/ 6.25
Suntan Khakis	6.00/ 6.50
Cottonades	3.50/ 4.00
No. 1 Washables	3.00/ 3.50

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.25/ 2.50
Thirds and Blues, Repacked	1.75/ 2.00
No. 2 Roofing	27.00/ —

COTTON LINTERS

Memphis Market
F.o.b. Oilmills

	Feb. 14 Per 100 lbs
Grade 1 n.a.	
2	$9.10/ $7.70
3 } 1st cut—felting	7.00/ 5.80
4	5.25/ 4.20
5	3.75/ 3.05
5	3.00/ 2.75
7	2.75/ —

*Based on 73% cellulose.

Bagging
(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs
Foreign Gunny	$5.00/$5.25
Foreign Scrap Burlap	5.00/ 5.25
Heavy Wool Tares	6.50/ —
Austr. Wool Pouches	5.75/ —
Domestic Manila Rope	7.75/ 8.25
Domestic No. 1 Sisal Strings	4.25/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York Feb. 27	Boston Feb. 27	Chicago Feb. 27	Los Angeles Feb. 27
No. 1 Mixed Paper	$16.00/ 18.00	18.00/ —	17.00/ —	14.00/ —
No. 1 News	27.00/ —	24.00/ 25.00	20.00/ —	14.00/ —
Overissue News	29.00/ 32.00	24.00/ 26.00	25.00/ —	14.00/ —
Mill Wrappers	25.00/ 28.00	22.00/ 26.00	20.00/ —	14.00/ —
Old Corrugated Containers	27.00/ 30.00	23.00/ 24.00	30.00/ —	19.00/ —
Super Resorted Kraft Paper ...	40.00/ 50.00	45.00/ 50.00	40.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts (Semi-chem. medium)	40.00/ 42.00	35.00/ 42.50	40.00/ —	35.00/ 40.00
New 100% Kraft Corr. Cuts ...	45.00/ 52.50	45.00/ 52.50	45.00/ 52.50	— / —
New Br. Kraft Env. Cuts	55.00/ 65.00	55.00/ 65.00	75.00/ —	45.00/ —
New Br. Kr. Bag Waste Prntd.	90.00/100.00	85.00/ 95.00	80.00/ —	60.00/ —
New Br. Kr. Bag Waste Unprrtd	65.00/ 75.00	60.00/ 70.00	70.00/ —	60.00/ —
	75.00/ 80.00	80.00/ 90.00	85.00/ —	— / —
No. 1 Groundwood Shvs.	45.00/ 50.00	32.00/ 35.00	40.00/ —	27.00/ 30.00
White Newsblanks	80.00/ 82.50	65.00/ 75.00	65.00/ —	65.00/ —
No. 1 Soft White Shvs.	90.00/100.00	80.00/ 85.00	80.00/ —	— / —
Hd. Wht. Shvs.	115.00/120.00	115.00/125.00	120.00/ —	105.00/ —
Hd. Wht. Env. Cuts	135.00/145.00	135.00/145.00	120.00/ —	120.00/ —
Col. Tab. Cards	75.00/ 80.00	75.00/ 77.00	65.00/ —	44.00/ —
Manila Tab. Cards, bales	100.00/110.00	95.00/103.00	100.00/ —	79.00/ —
No. 1 Col. Ledger	40.00/ 50.00	45.00/ 50.00	50.00/ —	35.00/ —
White Ledger	75.00/ 80.00	70.00/ 75.00	70.00/ —	55.00/ —
Mixed Book & Mag.†	30.00/ 31.00	30.00/ —	27.50/ —	— / —
No. 1 Rep'd. Hvy. Books‡	35.00/ 40.00	33.00/ 35.00	40.00/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood. § Deld.

If you make papers where appearance counts—wallpaper, publication stock, wrappers, cartons—TITANOX white titanium dioxide pigments are for you.

To reduce show-through, the use of TITANOX is imperative. To afford contrast—TITANOX. To increase visibility and legibility—again TITANOX. No matter what its purpose, paper pigmented with TITANOX is better-looking paper. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 5; Boston 6; Chicago 3; Cleveland 15; Houston 2; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 14, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

Titanium Pigment Corporation is a subsidiary of National Lead Company

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Write for bulletin 194-SA

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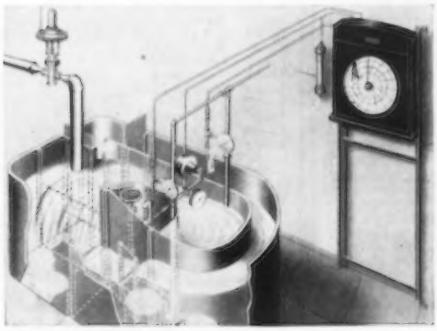

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No moving parts—no maintenance problems.

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21 SECONDS *to Test Stiffness of Paper and Paper Board*

That's all it takes to measure samples up to 0.25" thick with the motorized Gurley Stiffness Tester. It easily handles tissue, newsprint, book, bonds, ledgers, industrial papers, cardboard, carton stocks; and permits a wide range of readings from 1 to 3,358,720.

Precision strip cutter also available. Write for Bulletin 1400, describing complete line of Gurley paper testers.

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Plant engineers, master mechanics, designers and draftsmen; production engineer; time study-industrial engineers; chemist.

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CHARLES P. RAYMOND SERVICE, Inc.
Phone: Liberty 2-6547
294 Washington St. Boston 8, Mass.
M-5

MECHANICAL ENGINEER

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large expanding and progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience. Send resume to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland OAM

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping lay-out systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland OAM

TOUR BOSS WANTED

If you are a tour boss or an experienced machine tender with ability and ambition to be a tour boss we have an opening. Progressive two machine board mill in Eastern Pennsylvania. Manufacturing set-up and folding boxboards and specialties. Steady employment. If available, write Box 56-56, Paper Trade Journal, giving experience and age. M-5

CHEMISTS—CHEMICAL ENGINEERS

Enlarged Technical Department of an expanding Pulp and Paper Mill requires Chemists and Chemical Engineers to meet the demands of expansion. Excellent opportunity, salary and fringe benefits. Send resume and expected salary to Box 56-77 c/o Paper Trade Journal. M-5

INDUSTRIAL ENGINEER

Pulp and Paper Mill desires to locate a young aggressive Industrial Engineer to do methods and process studies. Also some job evaluation and time studies in connection with a long established and accepted plan. Excellent opportunity. Send resume and expected salary to Box 56-78 c/o Paper Trade Journal. M-5

MECHANICAL ENGINEER

Expanding Pulp and Paper Mill requires a Mechanical Engineer to understudy present Maintenance Supt. Excellent opportunity for advancement and personal development. Good salary and fringe benefits. Send resume and expected salary to Box 56-76 c/o Paper Trade Journal. M-5

Help Wanted

CHEMICAL ENGINEER OR CHEMIST

Ch.E., M.S. or Ph.D. Degree
0-5 years' experience

For research in paper coatings, extrusion, lamination, etc. leading to the development of new packaging materials based on paper. This opening is in a new and expanding research organization of leading paper manufacturer, with excellent opportunity for advancement.

Send Detailed Resume of Personal Data, Experience and Education to Personnel Department:

WEST VIRGINIA PULP AND PAPER COMPANY
Mechanicville, New York
M-12

HEATING & VENTILATING ENGINEER

Graduate Engineer experienced in all phases of paper mill heating and ventilating air conditioning and refrigeration for large expanding and progressive mill in Maryland. Under 35 years of age, good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland OAM

POSITIONS FOR PAPER EXECUTIVES

The nation's largest executive placement agency has an exclusive department for the nationwide placement of successful engineers, technical men and salesmen in the paper industry. Immediate openings in all parts of the country for men under 48 earning over $7,000. Write to R. Graebner, Graebner Executive Exchange, 116 S. Michigan, Chicago, Illinois.
M-5

WANTED

Paper chemist for product development of chemicals for pulp and paper industries. 2-5 years experience in these fields necessary. Outstanding growth potential in newly formed Product Development Department of the ATLAS POWDER COMPANY located in Wilmington, Delaware. Direct all replies to: R. L. Herrman, marked personal. All responses held confidential.
M-5

RESEARCH PHYSICIST

B.S. degree in Physics to assist in design of new instruments and testing equipment and to evaluate preliminary models for performance and final design purposes. Age 25-35. Good salary, usual benefits. Send resume to Personnel Manager, West Virginia Pulp and Paper Co., Luke, Md. TF

SALES ENGINEER

Graduate Mechanical Engineer with at least 2 years paper mill experience for inside sales work.

We will train you to make estimates, layouts and specifications.

Write, giving complete resume of experience and qualifications.

Address Box 56-68 care Paper Trade Journal.
M-12

FOR SALE

PRINTING PRESSES

1—52" Wide 4 Color Manton Oil Ink Press.
1—40" 4-color Hudson-Sharp Flexographic, with Variable Sheeter.
1—36"x66" 4-Color Meisel Oil Ink Rotary.
1—36" 2-Color Manhassett. Roll to Roll with Slitting Attachment.
1—30" 4-Color Kidder Celloprinter.
1—30" 4-color Paper Converting Machine Co.'s Roll to Roll Oil Ink Press.
1—30" 4-Color Cottrell Interchangeable Cylinder Oil Ink Press.
1—26" 3-Color Potdevin Flexo Tailprinter
1—22" 2 Color Potdevin Roll to Roll Flexographic Tailprinter.
1—#3—1 Color Keese Perfect Seal Press.
2—40" Web, 34" Print 3-Color Flexographic. Roll to Roll.

POWER PAPER CUTTERS

18—Seybolds—1-56" Precision, 56" 12Z; 44", 50" & 74" 10Z; 44", 50", 56"; 64" & 84" Daytons; 44" & 74" 20th Century; 34", 38", 44" & 75" Holyokes. 36" Model 2X; 2Y 34" late type Model CHB. 4 Oswegos—44", 50", 57" & 68". 3—Sheridans—36", 40" & 65".

CAMACHINES

1—162" Type 19.
1—72" Type 10-10.
1—72" & 1 62" Type 10-5.
1—62" Type 10-B4.
1—62" Type 40 1AF.
1—62" Type 8-10.
1—62" Type 26-7AM.
1—52" Type 10-6.
1—52" Type 26-3A.
1—42" Type 9-5-A.
1—42" & 62" Type 6.
1—42" Type 10-SA, 30" rewind.
1—42" & 1—52" Type 24-2A.
1—42" Type 40-SD (Roll Doctor).
1—40" Type 40.

OTHER SLITTERS

1—84" Waldron Double-Drum, Shear-Cut, 50" Max. Rewind.
1—30" Model B Fales-Shear-Cut.
1—48" Inman.
1—40" Type "A" Langston Shear-Cut.
1—36", & 1—40" Kidder SL Model.
1—30" & 1—40" Beck Razor Blad Slitter.
1—40" Kidder SH Model—40" rewind.
1—50" Meisel Series O-P Shear-cut.

MISCELLANEOUS MACHINES

1—40" Waldron Knife Coater.
1—48" & 1—60" Hudson Sharp Waxing Machine. Type AW2.
1—52" Waxer & Laminator.
1—64" Sheet Paraffining Machine.
1—72" Mayer Equalizer Type Waxing & Laminating Machine.
1—75" Squeeze Roll Waxing Machine.
1—Langston Tube Winder Equipment.
1—66" Paper Converting Machine Co. Household Roll Machine.
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7—Die Presses 1—50" x 22" & 1—44" x 22" Sheridan, 1—38" x 24" Type UA — 2—17" x 42" Seybolds.
1—37" x 24 Kidder.
5—Waldron Embossers, 1—27", 1—32", 1—40", 1—44" heavy duty & 52".
7—Embossers, 1—26", 1—30", 3—60", 1—72" & 1—81"
1—30" Sheet Fed Cardboard Embosser.
2—Goins Garment Bag Machines.
1—2 oz & 1—½# to 1# Cellophane Bag Machines.
2—Paper Converting Machine Co.'s ¼ Fold Napkin Machines. 1—2 web.
1—Hudson-Sharp 13½" x 13½" ¼-Fold Napkin Machine.
2—Model "A" Junior Lawtomatic Toilet Roll Wrapping Machines.
1—48", 67", 72", 76" and 100" Hamblet Single Rotary Sheeters with backstands and layboys.
1—48" Moore & White Sheeter, 52" Knife with Layboy & Overlapping Delivery.
1—80" Hamblet Duplex Rotary Sheeter with backstands & layboy.
1—90" Moore & White Single Rotary Sheeter with backstands.
1—Dreissig German D-6 Bronzer.

PAPER AND PULP MILL MACHINERY

1—60' Holyoke 10 Roll Stack of Super Calenders.
1—54" Holyoke, 7-Roll Stack of Super Calenders.
1—21½" & 140" Millspaugh Suction Press Roll.
3—Nash Vacuum Pumps, L-5, L-6 and L-7.
5—3 Pocket Grinders Stones, 26" & 27"x54".
1—Sutherland Right Hand 42" Disc Refiner.

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USED PAPER MAKING & CONVERTING MACHINERY

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IMMEDIATE DELIVERY FROM AMERICA'S LARGEST INVENTORY OF PAPER MACHINERY

BALERS

1—Buffalo Baling Press—upstroke.

BEATERS

1—Dilts high speed iron tub. Roll 62" dia. x 54" face with 75 HP motor & controls.
1—E. D. Jones "Bertram" 1500 lbs. Roll 72" x 63". C. I. Tub. Complete with Foxboro Air Cylinder Control and washer. Driven by 3 h.p. gear head motor. Used 2 years.

CYLINDER MOULDS

3—136" face x 54" diameter—stainless steel covering—with 2 iron end vats.

CALENDER ROLLS

46—Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS

1—Black Clawson 90" 7 roll with 3 spare rolls.
1—Black Clawson 82" 3 roll with doctors.
1—Black Clawson 82" 5 roll with doctors.
1—Farrel Birmingham 124"—9 roll stack—water cooled bearings.
1—Sandy Hill 84" 7 roll, with doctors.

DRIVES

3—Reeves #2F, #3 and #6.
3—Hamilton Parallel enclosed Drives; 1—60 h.p.; 1—100 h.p. and 1—125 h.p.

DRYERS

7—43" face & 36" dia.—frames, gears & bearings.
4—52" face x 48" diameter—gears & bearings.
1—52" face x 24" diameter—gears and bearings.
17—84" face x 36" diameter, with gears.
1—88" face x 36" diameter.
1—104" face x 36" diameter.
1—104" face x 48" diameter.
10—109" face x 42" diameter.
1—110" face x 42" diameter, with bearings.
1—116" face x 36" diameter.
1—116" face x 48" diameter.
6—120" face x 48" diameter with gears, bearings and felt rolls.
1—124" face x 48" diameter.
1—126" face x 48" diameter.
13—127" face x 42" diameter.
1—130" face x 48" diameter.
9—160" face x 36" diameter, gears & bearings.
44—160" face x 48" diameter. Complete dryer section including felt dryers, felt rolls, etc.
36—132" face x 42" diameter with gears, bearings and frames.
18—58" face x 36" diameter. Complete with 2 deck frames, gears, bearings and steam joints and felt equipment.
64—46" face x 24" diameter. Complete with 2 deck frames, gears, bearings and steam joints and felt equipment.
24—46" face x 48" diameter. Complete with gears, bearings, steam joints and felt equipment.

EXTRACTOR ROLL

1—Downingtown 138" x 24" Extractor Roll with 19" diameter rubber riding roll—all anti friction bearings.

FLAT SCREENS

3—8 plate Sandy Hill roller shoe with scrapers.
2—8 plate Bagley & Sewall with scrapers.
2—12 plate Sandy Hill, anti friction bearings.

JORDANS

1—E. D. Jones pony Jordans 3/16" stainless steel fillings.
1—E. D. Jones Pony Jordan, ball bearing, with stainless steel filling.
1—Smith & Winchester standard with granite filling.
1—Noble & Wood Bull Dog Jordan. Anti friction bearings with coupling and motor base.
1—Appleton #2—anti friction bearings.
2—E. D. Jones Standard Jordans—anti friction bearings.

KNIFE GRINDERS

1—132" Rogers with motor. Used 5 months.
1—130" Hanchett belt driven complete with coolant pump, and 2 spare wheels.
1—92" Seybold with motor.

LABORATORY EQUIPMENT

1—Biggs 6' diameter Rotary Digester 100# pressure.

MOTORS

12—125 H.P. Westinghouse synchronous enclosed. Brand new. 440 volt, 720 rpm forced air ventilation with starters.
1—Westinghouse 300 h.p., 388 r.p.m., 440 v., 3 phase, 60 cycle.

PASTING MACHINE

1—Hudson Sharp 72"—3 roll Paste Applicator with Link Belt Reducer and 25 h.p. motor. (New 1946).

PULP EQUIPMENT

3—2 ft. x 8 ft. type 300 Tyler Niagara stainless steel Chip Screens.
1—3 ft. x 8 ft. type 300 Tyler Niagara stainless steel Chip Screens.
1—Lannoye Pulper—enclosed drive and 30 h.p. motor.

PULP PRESSES

1—Hydraulic Machine Co. 250 tons 30" x 36" platen, 48" daylight, 30" stroke, 16" ram —upstroke. For baling dry pulp.

PUMPS

44—Centrifugal Pumps open & closed impellers.

REELS

1—Pusey & Jones 162" drum reel.
1—Downingtown 104" 2 bowl reel.
1—84" Pope Reel.

REFINERS

1—Dilts Hydrafiner.
2—34" Sutherland Disc Refiner, stainless steel discs. 1—left hand and 1—right hand.

ROLL GRINDERS

1—Lobdell Model 3MB for 30" diameter rolls —19 ft. 6" bed. Complete with crowning device and 15 h.p. main motor drive and 2 10 h.p. motor grinder wheel drives.

ROLLS—PRESS, COUCH, etc.

32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS

1—#2 Bird—Copper vat.
2—Bird #3A—Monel Vats.
5—Bird #2A with copper vats.
1—Bird #3A—copper vat—2 motors.

SHEETERS

1—Cameron 124" quick change double slitter assembly for board sheeters. Complete with 16 pneumatic slitters.
1—Moore & White simplex 114" sheeter with Maxson Layboy, overlapping delivery, 8 roll backstand motor and starter.
1—Hamblet 100" single knife with 3 slitters.
1—Hamblet 81" duplex with Erie Layboy 12 roll backstand and motor.
1—Hamblet 75" with layboy and backstands.
2—Hamblet 110" single knife sheeters.
1—Beck 45" sheeter.
1—Beck 48" with jogger.
1—Hamblet 55" with 3 roll backstand.

SHREDDERS

2—Mitts & Merrill Air Fluff Paper Shredder. Used 9 months.
1—Mitts & Merrill #17-2A paper shredder.
2—Taylor Stiles Giant Stock Shredders, Style 36.

SLITTERS AND WINDERS

1—Dietz 81" Parent roll backstand—with automatic tensioning device.
1—Cameron 42" Model 6.
2—Cameron 165" Model 18—Complete with motor drive and roll ejector.
1—Cameron 194" Model 19. Anti-friction bearings, 2800 f.p.m., equipped with air operated quick change, constant tension and roll ejector.
1—Moore & White 66"—two drum.
3—Essex 42" center wind—30" duplex rewind. Anti friction bearing equipped.
1—Cameron 42" Model 9-S.
1—Cameron 62" Model 6. V Belt Driven by 7½ h.p. variable speed motor with controls.
1—Cameron 62"—Model 6.
1—Schultz 18"—Automatic with motor.

STOCK PUMPS

1—Shartle 10 x 20 single plunger pump.
1—Moore & White 10 x 16 Triplex.
1—Beloit 8 x 10 Triplex.
1—Downingtown 8 x 18 triplex, with enclosed drives and motor.

SUCTION COUCH ROLLS

2—Beloit 25" diameter x 114" face, anti friction bearings, with stands. Direct drive.
1—Sandusky suction couch 25" diameter x 122" drilled face.
1—Sandusky suction couch 18" diameter x 122" drilled face.
1—Sandusky 28" diameter x 162" drilled face complete Trunnion Roller Bearing.
1—Sandusky 22" diameter x 135" drilled face trunnion roller bearings.
1—Sandusky 18" diameter x 116" drilled face.

SUPERCALENDERS

1—Norwood 30" 5 roll, complete with motor drive.

TISSUE AND TOWELING MACHINE

1—B & S 90" single cylinder machine. Complete including pumps, piping, valves, enclosed drive and VS motor drive. Full details on request.

TRIMMERS POWER BACK GAUGES

1—Seybold 94" Model 15 ZJ.
1—Seybold 64" Model 12-Z.
1—Seybold 56" Dayton—10 knives.
1—Seybold 84" Dayton with motor and spare knives.
1—Seybold 72" Dayton.

VACUUM PUMPS

1—Nash H-3 with 5 h.p. motor.
2—Nash H-4.
1—Nash L-3 with totally enclosed 5 h.p. motor.

VOITH INLETS

1—New Valley Iron Works 156" x 36" monel lined inlet and head box.
2—Valley Iron Voith Inlets, adjustable 83" to 86"—Brass lip, stainless steel apron.
1—Valley Iron Works—106".
1—Valley Iron Works 151" stainless steel inlet and head box.
1—Bagley & Sewall 144" stainless steel clad high speed inlet and headbox.

VORTRAPS

7—Nichols 4" stainless steel Vortraps—rubber lined heads.

WET MACHINES

1—Rogers 72" x 48" Wet Machine. Double press sections.

YANKEE DRYERS

1—10 ft. diameter x 132" face with bearings
1—Beloit 12 ft. diameter x 140" face—75 lb. steam pressure.

CHEMICAL ENGINEERS OR CHEMISTS
BOWATERS SOUTHERN PAPER CORPORATION

South's largest Newsprint Manufacturer has permanent positions available for Chemical Engineers and Chemists. Mill's Technical Staff now being enlarged because of extensive expansion program. Degree in Chemical Engineering or Chemistry from accredited university required. Minimum of two to five years experience in Kraft and/or Newsprint Mills preferred. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. All replies will be answered and treated in confidence. Reply immediately submitting summary of experience to:

Industrial Relations Department
BOWATERS SOUTHERN PAPER CORPORATION
CALHOUN, TENNESSEE

TF

BOWATERS SOUTHERN PAPER CORPORATION

South's largest newsprint manufacturer has positions available in following Engineering fields:

• Electrical • Civil • Mechanical • Also Draftsmen

Engineering staff being enlarged because of extensive expansion program. Openings for experienced and recent graduates for office and field work. Duties include cost estimating, design layout, studies of operational problems, field supervision, etc. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. Mills are located in the heart of the Tennessee Valley and are near established communities, offering excellent residential and recreational facilities. All replies will be treated in confidence. Qualified applicants will be interviewed locally by Company representatives or will visit our offices at Company expense. Reply immediately submitting summary of experience to:

Industrial Relations Department

TF

BOWATERS SOUTHERN PAPER CORPORATION
CALHOUN, TENNESSEE

ASSISTANT PLANT MANAGER

Opportunity For A Man With A Degree In Chemical Or Mechanical Engineering

Growing multi-plant company needs an Assistant to Plant Manager in Western Massachusetts converting operation making several products. 5-10 years operating experience in paper making required, with knowledge of coating or impregnating papers preferred. Replies will be handled as strictly confidential. Please include salary requirements. Send replies to Box 56-82 care Paper Trade Journal.

M-5

PAPER MILL SUPERINTENDENT

For New England area Pulp and Paper Mill. Experienced on Fourdrinier machine. Thorough knowledge in making light weight papers such as Bleached, Natural and Kraft Toweling, Kraft Wrapping, MF and MG grades. Also 9 point corrugating medium (temporary). Must be married and family man. No "fly-by-night"; experienced only should apply. Submit complete resume stating age, education, experience and salary desired. Salary commensurate with ability and excellent opportunity for advancement. Reply Box No. 56-69, c/o Paper Trade Journal.

M-5

MAINTENANCE MAN—good all around, able to do machine shop and electrical work for paper converting plant. Write to: Newark Paraffine & Parchment Paper Co., 50 Jelliff Avenue, Newark, N. J. TF

CHEMIST or CHEMICAL ENGINEER

RESEARCH SUPERVISOR to direct laboratory research group engaged in both fundamental and practical studies of pulping and bleaching methods. Related experience and advanced degree are desirable.

Location is in the mountain resort area of Virginia. The expanding research organization has established brand new laboratory facilities here to complement the company's complete experimental pulp mill. This position offers excellent opportunities for advancement in every phase of research and development.

For more detailed information, send resume to:

Harold E. Miller, Technical Director
West Virginia Pulp and Paper Company
Covington, Virginia

M-12

WANTED: Finishing Superintendent

Man under 45 with broad finishing department background, working with fine paper mill. Should have proven record of good organizational and leadership experience. Mill located in midwest. Reply with full details of education, experience and salary requirements to box 56-66 care of Paper Trade Journal.

M-5

It will speed the reply to your inquiry to mention Paper Trade Journal.

ASSISTANT PAPER MILL SUPERINTENDENT

For New England area Pulp and Paper Mill. Experienced on Fourdrinier machine. Thorough knowledge in making light weight papers such as Bleached, Natural and Kraft Toweling, Kraft Wrapping, MF and MG grades. Also 9 point corrugating medium (temporary). Must be married and family man. No "fly-by-night"; experienced only should apply. Submit complete resume stating age, education, experience and salary desired. Salary commensurate with ability and excellent opportunity for advancement. Reply Box No. 56-70, c/o Paper Trade Journal.

M-5

WANTED—TOUR BOSS for night work on Fourdrinier Board Specialties. Metropolitan New York Area. All benefits. Send resume and salary expected first letter to Box 55-329 care Paper Trade Journal. TF

Situations Wanted

BOARD SUPERINTENDENT

Twenty-eight years of practical experience in manufacturing high grade folding boxboard, frozen food cartons on seven and eight cylinders from bleached sulphite, sulphate, old paper stock. Aggressive man, excellent references, good health. Address box 56-41 care The Paper Trade Journal.

M-26

MILL OR OPERATING MANAGER

With engineering background desires position with medium or small Manufacturer of pulp, paper or board. Very extensive experience in all phases of the industry in production and engineering. Address Box 56-64 care Paper Trade Journal.

M-19

FOR SALE

BARKING DRUM
1—10′ x 30′.

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs, with motors.
Write us regarding your requirements.

BREAKER STACK
1—110″ face 2 roll breaker stack, with frames.

CALENDER STACKS
1—3 roll 30″ face friction Calender Stack (Holyoke), 2 iron rolls, 1 cotton roll and 1 spare cotton roll.
1—3 Roll 84″ Calendar Stock.
1—4 roll 72″ Calender Stack. (Extra heavy duty).
1—5 Roll 86″. (Heavy Duty)
1—5 Roll 90″.

CHIPPERS
1—96″ Murray 6 knife chipper, complete with 300 H.P. synchronous motor.
1—96″ Murray 4 knife Chipper—anti-friction bearings.

CLASSIFINER
1—Dilts Classifiner, practically new, with motor.

CORE MACHINE
1—M. D. Knowlton tube winder, 94″ face.

CREPER AND WAXER
1—80″ Creeper and Waxer, excellent condition, details on request.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.

CYLINDER MOLDS
2—30″ diameter x 72″ face.
1—30″ diameter x 92″ face.
2—36″ diameter x 54″ face.
1—36″ diameter x 84″ face.
2—36″ diameter x 86″ face, with vats.
2—36″ diameter x 110″ face.
3—36″ diameter x 90″ face, 18″ diameter couch rolls.

DIGESTERS
2—14′ Globe Rotary Digesters.

DRIVES
1—Jones 21 H. P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive.
1—Vaughn 100 h.p. enclosed angle drive. Ratio 7 to 1.
2—Cleveland agitator drives, for chests.
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 h.p.).
1—#4 Reeves Drive, totally enclosed, Class E, with 25 h.p. splash proof motor.

DRYERS
5—24″ diameter x 54″ face, with bearings.
5—28″ diameter x 80″ face with anti-friction bearings.
4—36″ Diameter x 115″ face, with gears & bearings.
6—36″ diameter x 44″ face with frames gears & bearings.
1—36″ diameter x 66″ face.
1—36″ diameter x 67″ face.
15—36″ diameter x 72″ face.
6—36″ diameter x 76″ face.
2—Dryers 36″ diameter x 84″ face, with bearings gears & frames.
2—36″ diameter x 80″ face.
1—Dryers 48″ diameter x 134″ face.
1—48″ diameter x 144″ face.
1—62″ diameter x 67¾″ face, bearings & gears.
4—48″ diameter x 50″ face, bearings.

DYNOFINER
"Rice Barton," details on request.

EMBOSSING CALENDERS
1—45″ Meadows 2 roll embosser.
1—32″ Cavagnaro 2 roll embosser.
Write us regarding your requirements.

EXTRACTOR ROLLS
1—Extractor roll, 26″ diameter x 104″ face. with rubber couch roll.
1—Rice Barton & Fales Extractor Roll, 26″ diameter x 104″ face, with rubber couch roll.

FELT CONDITIONER
1—160″ Vickery, complete.

FLAT SCREENS
2—14 plate Packer, roller shoes.

GEARS
Write us regarding your requirements.

GRINDERS
2—4 pocket Grinders.
2—3 pocket Grinders.

JORDANS
1—#4 Emerson Jordan, anti-friction bearing.

LABORATORY EQUIPMENT
1—Marcy Rod Mill.
Write us regarding your requirements.

LAMINATING MACHINE
1—72″ Hudson-Sharp laminating machine. reverse coater.
2—26″ Polyethylene laminators.
2—84″ Asphalt laminators.
1—72″ Beloit Laminator, complete with drive.

MOTORS
1—50 H.P. Upright motors, air cooled 3/60/440, 1150 R.P.M. (Ball Bearing).
Write us regarding your requirements.

PRESSES
Write us regarding your requirements.

PRESS ROLLS
1—Chilled iron, chrome plated, 12″ x 100″
1—Chilled iron, chrome plated, 10″ x 74″

PULLEYS
Various cone and assorted pulleys.

PULPERS
1—Jones Pulper.

PUMPS
1—Shartle Bros. high density pump, 2000 g.p.m., 62 ft. head.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

RAG CUTTERS
Write us regarding your requirements.

REELS
1—86″ 2 bowl reel.
1—84″ 3 bowl revolving reel.
1—100″ Rice Barton 2 bowl Reel, heavy duty.
1—123″—3 bowl revolving reel.
1—134″—2 drum.
1—72″ Dowingtown Reel, 2 bowl.

REFINER
1—12″ Wiener Refiner.

ROLLS
1—Rubber Couch Roll—20″ diameter x 108″ face.
Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

ROTARY SCREENS
1—#1A Bird, copper vat.
Write us regarding your requirements.

SAVEALLS
2—Sandy Hill, 36″ diameter x 86″ face cylinder molds, anti-friction bearings and couch rolls.

SCREEN PLATES
Bird Rotary screen plates.
Plates (new) for flat screens.
Write us regarding your requirements.

SCREENS
1—Bird Machine Company Jonsson Screens.

SHAKE
1—Bevis Fourdrinier Shake.

SHEETERS
1—42″ Finlay Sheeter.
1—85″ Maxson Sheeter (duplex) layboy, 11 rollback stand.
1—140″ Hamblet (Simplex).
1—140″ Hamblet (Duplex).

SHOWERS
Write us regarding your requirements.

SLITTERS & WINDERS
1—40″ Fales Slitter.
1—42″ Cameron type 24-3A.
1—42″ Cameron—Type 6.
1—42″ Cameron—Type 9.
1—50″ Cameron—Type 6.
2—52″ Cameron—Type 10.
2—60″ Kidder.
1—62″ Cameron—Type 6.
1—62″ Cameron (duplex)
1—72″ Cameron—Type 10.
2—86″ Two Drum Moore & White, 50″ diameter rewind.
1—120″ Moore & White, 4 drum winder.
1—157″ Cameron—Type 18.
1—169″ Bagley & Sewall, 2 drum, shear cut, 60″ diameter rewind.

SLITTING DEVICE
84″—Quick change slitting device shear cut, complete, practically new.

STEAM JOINTS
18—3″ Johnson steam joints (new).

STOCK PUMPS
1—8 x 18 Shartle Triplex.
2—10 x 10 Beloit Duplex, low type.
2—10 x 20 Shartle Triplex.
1—12 x 20 Shartle Triplex.
1—20″ x 20″ centrifugal Shartle, 12,000 G.P.M. (new)
Advise as to your requirements.

SUCTION BOXES
Write us concerning your requirements.

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127⅛″ face x 26″ diameter.

SUCTION COUCH ROLLS
1—36″ diameter x 246″ face, SKF bearings.
1—Downingtown suction couch roll, complete (new) 127½″ face x 26″ diameter.
1—Sandusky Suction Couch Roll 18″ diameter x 98″ face.

SUCTION FELT ROLL
1—Gilbert & Nash 122″ face.

SUCTION PRESS ROLLS
1—Sandusky Suction Press Roll 130″ drilled face x 14⅛″ diameter.

SUPERCALENDER STACKS
1—10 Roll 60″ Holyoke.

TABLE ROLLS
22—Rubber Covered 10″ diameter x 246″ face. Write us regarding your requirements.

THICKENERS
1—All cast iron vat, 30″ diameter x 115″ face cylinder mold, anti friction bearings, 18″ couch roll—very good condition.
1—42″ diameter x 146″ face, cylinder mold, iron end vats, with 18″ diameter couch roll complete with drive.
Write us regarding your requirements.

TOILET WINDERS
2—72″ Hudson-Sharp (Surface type winder).

TRIMMERS
1—63″ Oswego cutter.
1—60″ Guillotine cutter.
1—64″ Seybold cutter.

VACUUM PUMPS
2—L-6 Nash vacuum pumps
2—L-5 Nash vacuum pumps
2—L-4 Nash vacuum pumps
2—#1 Nash Hytor vacuum pumps
1—#2 Nash Hytor vacuum pump
1—#4 Nash Hytor vacuum pump

VALVES
8—10″ 3 way DeZurik Dump Valves.
6—12″ 3 way DeZurik Dump Valves.

VATS
2—D. J. Murray Company Vats, iron ends, for 42″ x 120″ cylinder molds, overflow and counterflow.

WET MACHINE
1—72″ Wet Machine.

YANKEE DRYERS
1—84″ diameter x 56″ face.
2—108″ diameter x 72″ face.

Paddy Ross, Pres.
377 Frelinghuysen Ave.*

J. J. ROSS COMPANY
Tel.—Bigelow 3-3720

Ben Kurs, Treas.
Newark 5, N. J.

Situations Wanted

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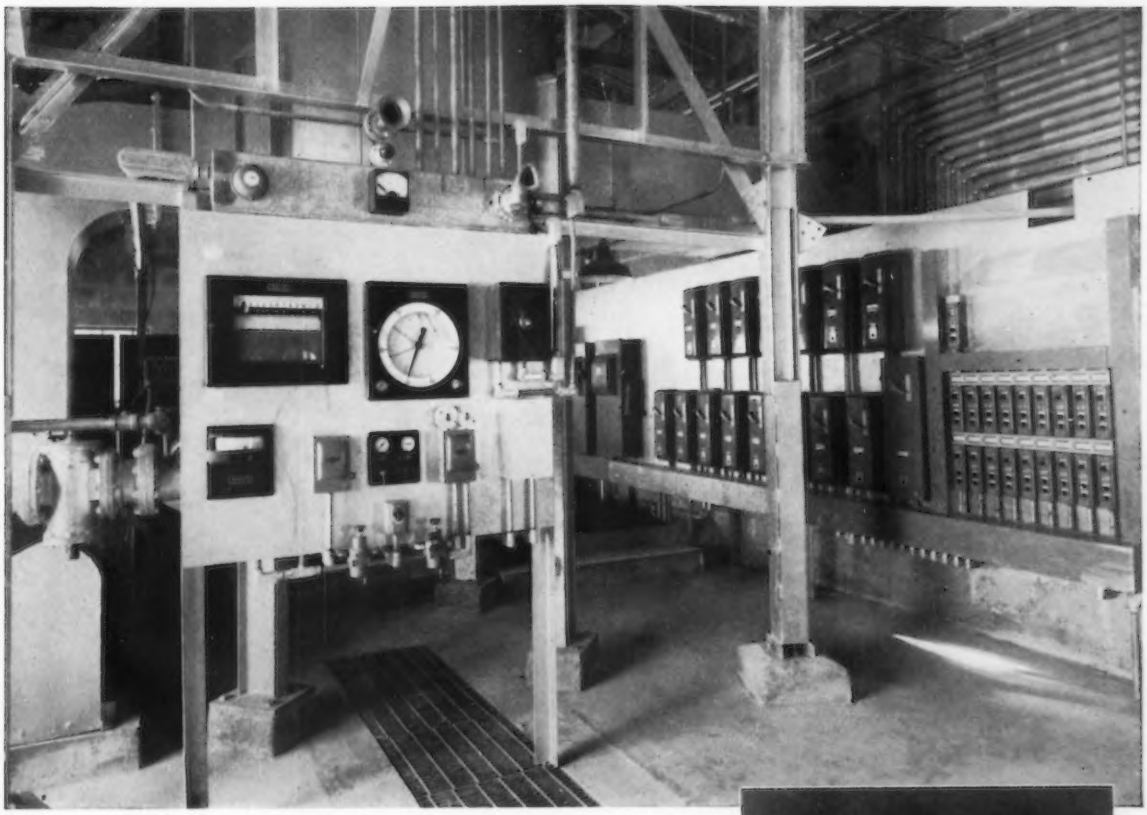

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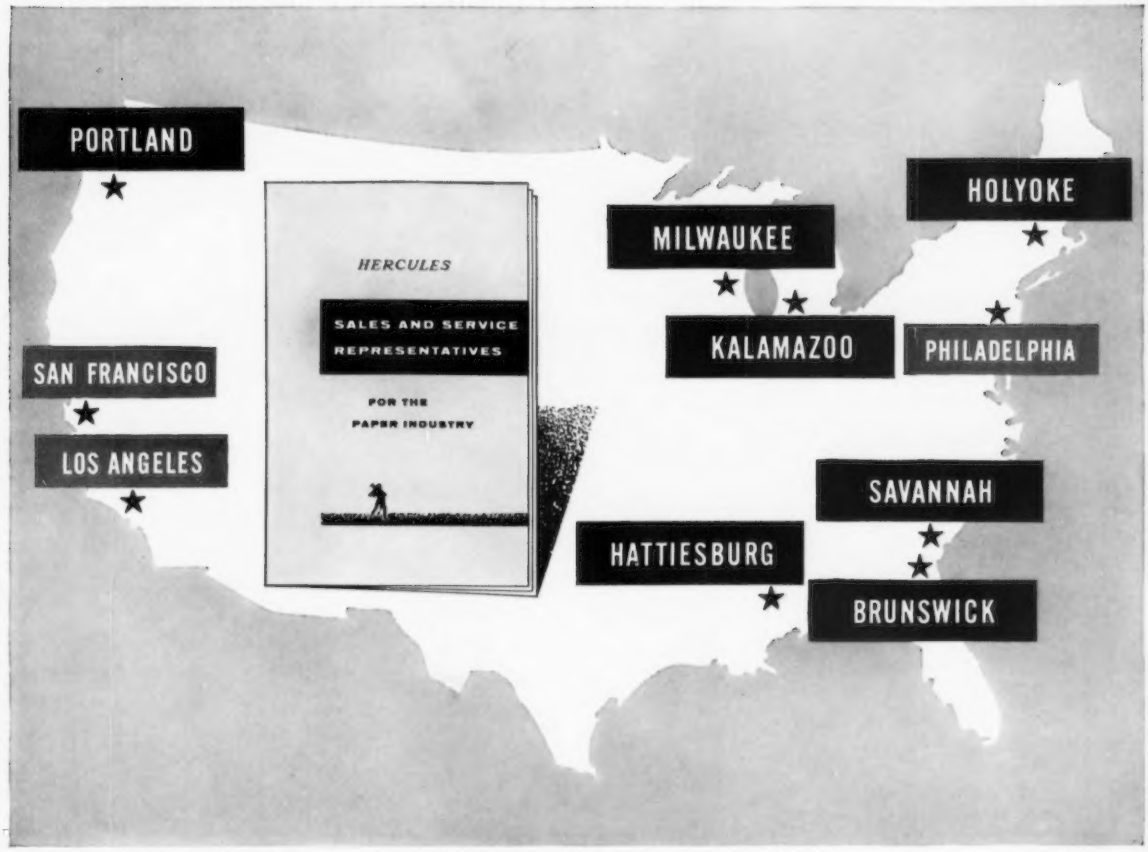

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